OCT 28 1942

SARGENTIA

A CONTINUATION OF THE
CONTRIBUTIONS FROM THE ARNOLD ARBORETUM
OF HARVARD UNIVERSITY

II

THE ARALIACEAE OF CHINA

BY

HUI-LIN LI

WITH FOURTEEN TEXT-FIGURES

PUBLISHED BY
THE ARNOLD ARBORETUM OF HARVARD UNIVERSITY
JAMAICA PLAIN, MASS., U. S. A.
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No. II. The Araliaceae of China. By *Hui-Lin Li.* Pp. 1–134, with fourteen text-figures. Oct. 26, 1942. $2.25.

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No. II, pp. 1–134, with fourteen text-figures
Issued Oct. 26th, 1942

Printed by the Lancaster Press, Inc.
Lancaster, Pa.

THE ARALIACEAE OF CHINA[1]

HUI-LIN LI

with fourteen text-figures

INTRODUCTION

This is a systematic study of the Araliaceae of China. An attempt is made to account for every published binomial belonging to this family as recorded from China in botanical literature from 1753 to the present date. Sources of all names are cited and an attempt has been made to clarify the often somewhat complicated synonymy. The work is mainly based on the extensive collection of Chinese plants at the Arnold Arboretum, supplemented by collections from other Chinese and American herbaria. The Araliaceae as a group is particularly difficult to study because of constant problems in relation to the delimitation of many genera and species. As it has been impossible for me to consult certain types preserved in European herbaria, because of war conditions, I have been obliged, in certain cases, to accept current interpretations, and thus certain conclusions must be accepted as tentative.

In adopting generic limitations generally accepted by most modern authors, seventeen genera[2] are recognized as occurring in China. Among them only *Panax* and some species of *Aralia* are herbaceous, all others being ligneous vines, shrubs or trees. *Diplopanax* is a monotypic genus confined to China. *Merrilliopanax,* herein described as a new genus from Yunnan, is also represented in India. *Tupidanthus* occurs also in India, *Tetrapanax* in Formosa, *Heteropanax* in tropical Asia, and *Kalopanax* in Japan. *Trevesia, Brassaiopsis, Macropanax,* and *Acanthopanax* are more or less widespread in southern Asia, while *Schefflera, Dendropanax, Pentapanax,* and *Aralia,* as herein interpreted, are common to both hemispheres. *Panax* is found in temperate regions of eastern Asia and North America, and *Hedera* in Asia, Europe, and North Africa. *Nothopanax* is chiefly Australian, with some species occurring in China.

Besides a few doubtful ones, a total of 121 species, 32 varieties, and 3 forms are recognized in this study. This number is about seven times that known to Forbes and Hemsley in 1888 (13), and twice the number enumerated by Chung in 1924 (6). The family is most highly developed in genera and in species in the south and southwestern parts of China. The numerous botanical explorations made in recent years in these parts of China by the Fan Memorial Institute of Biology, the Botanical Institute of Sunyatsen University, Lingnan University, and the University of Nanking, all in collaboration with the Arnold Arboretum

[1] A thesis submitted in partial fulfillment of the requirements for the degree of Doctor of Philosophy in the Department of Biology, Harvard University.

[2] *Plerandra* (*Diplasandra*) *jatrophifolia* Hance (Jour. Bot. **19:** 275. 1881) was described from a plant cultivated in the Hongkong Botanic Garden. The genus is Polynesian. As the original habitat of this plant is unknown, this genus is not treated here. *Fatsia japonica* (Thunb.) Dcne. & Planch. is also found only in cultivation in China. I have seen only one single fruiting specimen from China: Chekiang, Hangchow, Chi Pan Shan, *Chekiang Univ. LU77622,* in LU.

of Harvard University, have greatly enriched our reference collections and thus added to our knowledge of this family.

The classification of the Araliaceae has been treated by Baillon (1), Seemann (32, 33), Bentham and Hooker (3), Harms (17), and Viguier (36). In the present work, the systematic order of the genera follows that of Harms in Engler and Prantl, Die Natürlichen Pflanzenfamilien (17). Genera described since Harms' work was published are placed in accordance with his general arrangement. In characterizing the accepted genera, the original descriptions and later ones by other authors have been consulted, and these descriptions have been studied in association with extensive collections of Chinese and other Old World material. On account of the lack of sharp and well defined characters, various authors have at times tended to subdivide larger groups, but it is felt that at least some of those who advocate small generic segregates have lacked accessibility to comprehensive collections of reference material. In this treatment, it has been thought desirable to follow generic interpretations as accepted by most modern authors; in other words, I have adopted a conservative attitude. It is to be noted that between closely related genera, such as *Aralia* and *Pentapanax, Brassaiopsis* and *Acanthopanax,* etc., species apparently transitional in nature are often found. In cases of doubt or those of special interest, more or less detailed discussions are given under each species. The descriptions of the species herein presented are based on the original diagnoses, supplementary data provided by later authors, and an actual examination of all available specimens. The generic descriptions, in general, have been limited to the characters presented by the Chinese species.

In connection with this study of the Chinese Araliaceae, I have found the practice of pasting original descriptions and critical notes in the form of clippings or typed data into the herbarium to be extremely useful. It not only saves time in searching for references in widely scattered literature, but also enables one to detect many bibliographical errors by checking the complete series of assembled data regarding a given species. My study was greatly facilitated by having access to the very large amount of published data incorporated in the Britton Herbarium, New York Botanical Garden, and the less extensive assemblage in the herbarium of the Arnold Arboretum. In both institutions this task of inserting published data in the herbarium was initiated by Dr. E. D. Merrill, in 1930 and 1935 respectively. Where this work has been extensively done, the student consulting the herbarium finds a great deal of his needed bibliographical data readily available in juxtaposition with the actual herbarium specimens. For the technique of inserting published data in the herbarium, see Merrill, Jour. Arn. Arb. **18**: 173–182. 1937.

In the course of this study, it is found desirable to describe some new species and varieties and to make some new combinations; at the same time I have reduced to synonymy certain species proposed by various authors. One new genus is proposed. The types of the new species and varieties, unless otherwise indicated, are deposited in the Herbarium of the Arnold Arboretum, Harvard University.

It is to be noted that most of the new species are found in Yunnan, with a fair number from Kwangsi. These subtropical regions have been intensively explored only in recent years. Most of the new species are in the genera *Schefflera* and *Dendropanax,* both of which are mainly tropical in distribution. Species of the large and more temperate genera *Acanthopanax* and *Aralia* have been collected more frequently and are fairly well known. The mountainous south-

western parts of China still furnish a wealth of botanical material, with numerous novelties in all major groups of plants. As the floras of the adjacent regions, such as Siam, Burma, and Indo-China are, as yet, imperfectly known, a closer coordination of our knowledge of the elements of these closely related floras is highly desirable for a better understanding of the relationships and geographic distribution of the species occurring within the contiguous areas.

HISTORICAL NOTE

Three genera of the family Araliaceae were recognized by Linnaeus in 1753 (24). They were placed separately, *Aralia* in Pentandria-Pentagynia, *Hedera* in Pentandria-Monogynia, and *Panax* in Polygamia-Dioecia, in the Linnaean system. Ventenat in 1799 (35) first established the Araliaceae as a family, followed by Jussieu in 1816 (22) and D. Don in 1825 (9). DeCandolle (4) monographed the family in 1830, and later Endlicher (12) treated it in 1840 and Decaisne and Planchon (8) in 1854 respectively. From 1864 to 1868, Seemann (32, 33) revised the whole group by recognizing two 'orders,' the Hederaceae, those with flowers having valvate petals, and the Araliaceae, those with flowers having imbricate petals. Later treatments on the classification of the family were by Baillon (1) in 1880, Harms (17) in 1894, and Viguier (36) in 1906. No monographic study of the entire family has been made in recent years.

The first species described from China were *Aralia chinensis* Linn. and *Zanthoxylum trifoliatum* Linn. (the basis of *Acanthopanax trifoliatus* (Linn.) Merr.) published in 1753 (24). Other authors, such as Loureiro (25), Champion (5), Hance (15), Bentham (2), Seemann (32), and others, and later on Franchet (14), Harms (17, 18, 19, 20, 21), and others described many species of Chinese Araliaceae. In 1888, Forbes and Hemsley (13), in their enumeration of Chinese plants, recorded nine genera and twenty-two species of Araliaceae, including one species of the genus *Helwingia,* which is now placed in the family Cornaceae. Since that time a number of new genera and species have been added to the Chinese list as a result of successive botanical explorations in the more remote provinces. In 1924, Chung (6), in his catalogue of Chinese woody plants, listed fourteen genera, seventy-two species, and seven varieties of araliaceous plants. This number has since been increased considerably. Among the more recent authors who have contributed most to our knowledge of the Chinese Araliaceae are Handel-Mazzetti (16), Harms (17, 18, 19, 20, 21), W. W. Smith (34), Rehder (21), Merrill (26, 27, 28), and Chun (28).

GENERAL AND DIAGNOSTIC CHARACTERS

The Araliaceae are for the most part woody plants, *Panax* and some species of *Aralia* being herbaceous. The ligneous representatives vary from low shrubs to tall trees or vines, sometimes climbing by means of aerial roots. Some of them are epiphytic or pseudoepiphytic. The herbaceous species are perennial, with fleshy rootstocks. Some of the herbaceous species of *Aralia* have suffrutescent stems.

Many of the plants are prickly. The length, shape, abundance, and distribution of these prickles are important diagnostic characters. In addition to prickles, the plants may be covered with indumentum ranging from bristles or setose hairs to a well defined tomentum. The hairs may be simple, scaly, furfuraceous, or

more commonly stellate, and in color the indumentum varies from white to brown, ferruginous or red.

The leaves are alternately arranged and are sometimes more or less clustered at the ends of the branchlets. They may be simple and entire or palmately lobed, or digitately or pinnately compound or decompound. There are considerable variations in the size, shape, indumentum, serration, etc., and all are important diagnostic characters for delimiting genera as well as species. The number, prominence, and arrangement of the nerves are useful as specific characters in many cases. Some of the species of *Dendropanax* have characteristic translucent glands in the leaves, which vary in size, color, and distribution. The petioles are generally long and slightly enlarged and thickened at the base. The stipules are either adnate to and scarcely distinguishable from the base of the petiole or prominent, intrapetiolar, and united. They are occasionally absent.

The inflorescence is very important in the classification of the genera as well as species. It may be terminal at the end of long or short branches or axillary. The flowers of most species are arranged in umbels, occasionally in racemes. The umbels or racemes may again be organized into compound umbels or panicles. Some species have sessile flowers compactly arranged in globose heads. The inflorescence is frequently covered with indumentum. The number of flowers in the umbels, the length of the peduncles, the shape and size of the bracts and bracteoles, and the length of the pedicels are useful in differentiating some of the species and varieties. The presence or absence of articulations on the pedicels just below the flowers is an important generic character.

The flowers are regular, commonly very small, and perfect, polygamous, or dioecious. They are mostly 5-merous, but 4-merous and other variations are found. In *Tupidanthus,* the number of certain floral parts is indefinite. The calyx is superior, enclosing the ovary. It is usually short, infundibular or cup-shaped, and glabrous or hairy. The margin may be entire or distinctly or indistinctly dentate. The petals are inserted at the edge of the epigynous disk. They may be valvate or imbricate in the bud, a character that separates the two tribes of the family that are found in China. They are either free or they may cohere at their tips, thus at times being almost calyptrate and falling together. The petal-bases are generally broad, while their tips may be slightly thickened and incurved.

The stamens are generally of the same number as the petals and inserted alternately with them, rarely twice as many as the petals or indefinite in number. The filaments are distinct, short, as long as or sometimes slightly longer than the petals. The anthers are oblong or ovate, introrse, versatile, and consist of 2 locules dehiscing longitudinally.

The ovary is inferior, with one or more cells. The ovules are solitary in each cell, anatropous, and pendulous from the apex. The ovary is crowned by an epigynous disk or stylopodium which is either flattened or hemispherical and confluent with the styles. The styles correspond in number to the cells of the ovary and are distinct or more or less cohering into a column or short cone, rarely absent. The stigmas are simple, insignificant or slightly capitate.

The fruit is a berry or drupe mostly small in size, usually longitudinally ridged and sulcate. The shape, size, number of cells, and other characters are of diagnostic importance. The fruit is frequently crowned by the persistent styles or style-column and by the calyx-teeth. The exocarp is usually fleshy. The endocarp is sometimes hardly distinct from the exocarp or forms distinctly carti-

laginous or membranaceous pyrenes. The seeds are solitary in the pyrenes, inverted, usually laterally compressed, with a minute straight embryo and a fleshy, copious endosperm. The endosperm may be uniform or ruminated, a character of generic value.

SYSTEMATIC POSITION AND SUBDIVISIONS

The family Araliaceae is one of the three of the order Umbelliflorae (Umbellales), which is generally regarded as the most highly specialized group of the Archichlamydeae. This order is characterized by the commonly umbellate inflorescences and the usually small, epigynous flowers, with generally constant numbers of floral parts. The other two families are Umbelliferae and Cornaceae, the latter sometimes split into more than one family. The Araliaceae and Umbelliferae are considered as phylogenetically closely related, while the Cornaceae is not very closely allied to the other two. The Araliaceae differs from the Umbelliferae in that its habit is prevailing woody, the carpels 1–5 or sometimes more, and the fruit a drupe or berry; in the Umbelliferae the plants are all herbaceous, the carpels invariably two in number, and the fruit is a schizocarp.

The Chinese genera of Araliaceae can be arranged in two very clearly distinct tribes, the Schefflereae and the Aralieae. The former has the petals valvate in the bud, and the latter has imbricate petals. A third tribe, the Mackinlayeae, has no representative in China.

RELATIONSHIPS OF THE CHINESE GENERA

Tupidanthus is unique in the Araliaceae and seems to be only remotely related to the other genera. Its primitiveness, however, as indicated by the numerous stamens, ovary-cells, and styles, is unquestionable. By reduction in the number of its floral parts, its ancestral form may have evolved toward such a genus as *Plerandra,* an Indo-Polynesian genus, and thence on to other genera of higher positions.

Among the other genera, *Trevesia* is one of those of a more primitive nature, but in its 7–12-merous flowers it is distinctly more advanced than *Tupidanthus.* Nevertheless, it is still more primitive than the other genera in its more numerous petals, stamens, and ovary-cells. Reduction in the number of floral parts is a definite and clearcut sequence of evolution in this family.

Tetrapanax may be the result of further reduction from *Trevesia.* All of the three genera mentioned, *Tupidanthus, Trevesia,* and *Tetrapanax,* have a uniform endosperm, digitately lobed or palmately compound leaves, inarticulate pedicels, and entirely umbellate flowers.

Schefflera may represent a center of development culminating at this level. This large genus has closely related species, but variations within the genus are already manifest in the several directions that eventually lead to the development of other genera. The number of petals, stamens, and ovary-cells in the Chinese species varies from 5 to 7. The flowers, although mostly in umbels, are sometimes capitate or racemose; where the flowers are umbellate the umbels are often arranged in racemes. The leaves are prevailingly digitately compound in the Chinese species, but in certain extra-Chinese species they may be simple. The endosperm is mostly uniform, but in a few cases slight ruminations are present.

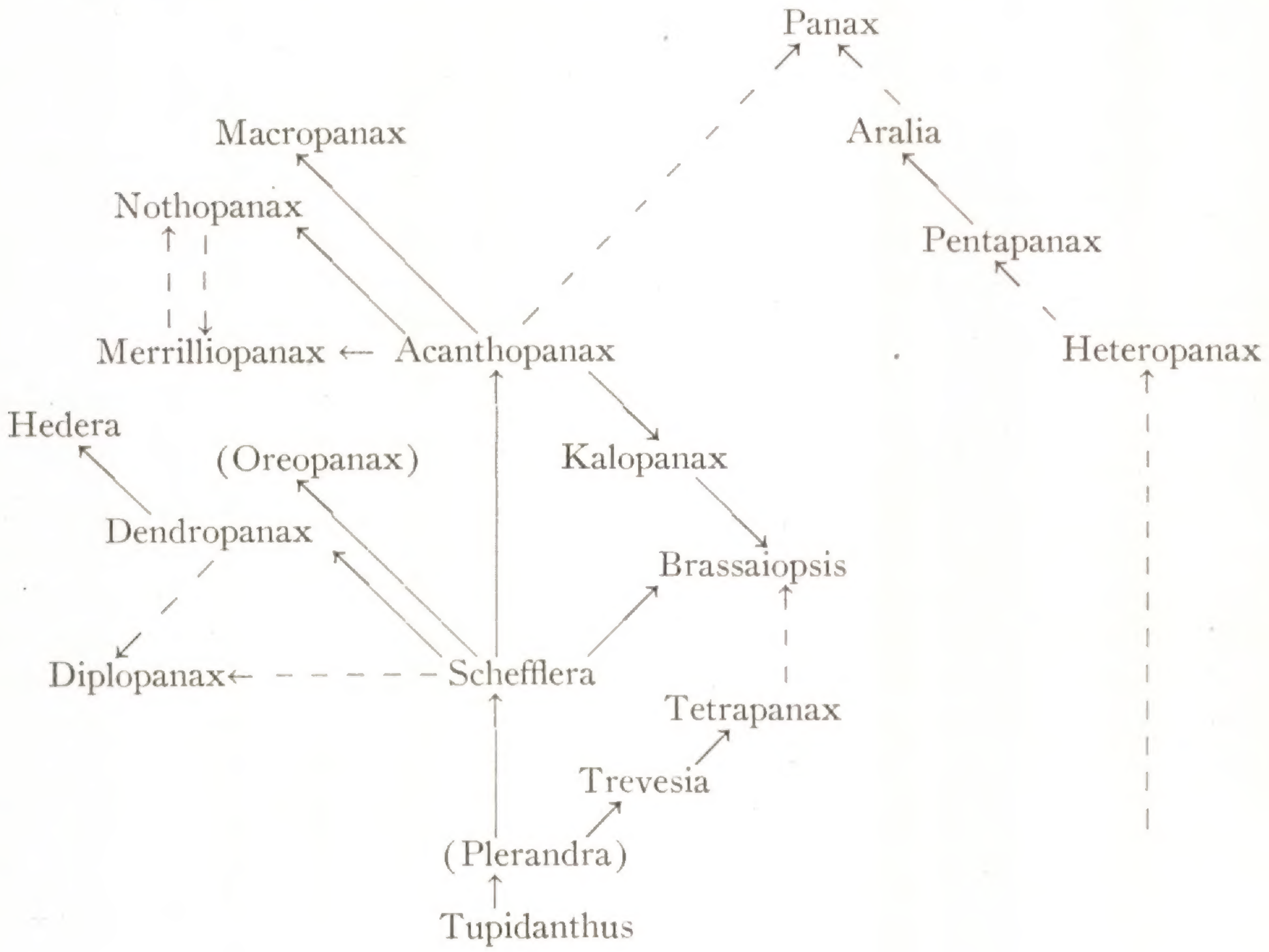
Those species of *Schefflera* with capitate flowers and ruminate endosperm point to the development of such a genus as *Oreopanax.* Those with ruminate

endosperm, by further reduction especially in the number of ovary-cells, may lead to the development of such a genus as *Brassaiopsis,* a group which is also apparently related to certain species of *Acanthopanax.* There may also be relationships between some species of *Brassaiopsis* and *Tetrapanax* and other genera with palmately lobed leaves.

On the other hand, *Dendropanax,* also apparently close to *Schefflera,* may have been evolved from the latter by a reduction of its vegetative parts, as it always has strictly simple leaves. *Hedera* is apparently derived from *Dendropanax,* but is more specialized in its climbing habit, often dimorphous leaves, and ruminate endosperm. The true alliances of *Diplopanax* are somewhat doubtful, as its single-celled ovaries, spicate inflorescences, and unique fruits are all outstanding and indicate little relationship to the other genera discussed. It is apparently closer to *Dendropanax* or perhaps *Schefflera* than any of the other genera.

Acanthopanax is another large group that may have been a center from which other genera have been derived. It represents a higher level than *Schefflera,* as evidenced by its smaller number of floral parts and the slight articulation of the pedicels in certain species. The genus is heterogeneous and may ultimately require certain segregations.

Some species of *Acanthopanax* are apparently related to *Brassaiopsis,* particularly those species with a reduced number of ovary-cells. The articulation of the pedicels is further developed in *Nothopanax* and *Macropanax,* the latter being further specialized by its ruminate endosperm. *Merrilliopanax* may represent another line of specialization from *Acanthopanax,* particularly in the direction of *Nothopanax. Kalopanax,* which has been included in *Acanthopanax* by some authors, is unquestionably closely related to the latter. It is, however, possibly equally close to *Brassaiopsis,* for some species of *Brassaiopsis* may have been



derived from *Acanthopanax* through *Kalopanax,* while other species may have been derived from *Schefflera.*

The different genera so far discussed are all members of the tribe Schefflereae, characterized by having valvate petals. They bear either simple or palmately lobed or digitately compound leaves. *Heteropanax,* however, differs from all others in having pinnately compound or decompound leaves. In floral characters, it is close to *Brassaiopsis* and *Macropanax.* It may represent a highly specialized line derived out of some genera with pinnately lobed leaves, that are not at present represented in China.

The tribe Aralieae has imbricate petals and evidently represents a higher development than the tribe Schefflereae, as evidenced by the herbaceous habit in some of the species. *Pentapanax* is even more primitive than *Aralia,* as may be judged by its prevailingly woody habit and generally more numerous ovary-cells. *Panax* is entirely herbaceous and represents a more specialized development. Its digitately compound leaves, however, indicate little relationship with the other two genera with pinnately compound leaves and it may even be remotely connected with *Acanthopanax* or other genera of the tribe Schefflereae.

A schematic representation of the relationships of the Chinese genera is presented on p. 6 to summarize the above discussion. The extra-Chinese genera mentioned are indicated by their names being in parentheses. Solid lines indicate more definite relationships, while broken lines indicate doubtful ones. Arrows are used to show probable directions of evolution.

GEOGRAPHICAL DISTRIBUTION

The family Araliaceae is mainly tropical, with very few of its genera extending to the north. In China the maximum development is in the southwest, with the province Yunnan yielding over half of all the known Chinese species. It is well represented in all the southern provinces, with 30° N. as the northern boundary of most of its genera. Among the seventeen genera known to occur in China, only five, *Acanthopanax, Kalopanax, Aralia, Hedera,* and *Panax,* have species that extend to the Yellow River Valley or occasionally even as far north as Manchuria. The distribution of the different genera may be summarized briefly as follows:

1. *Tupidanthus.* This monotypic genus is found in India and Burma. In China it is known from Yunnan only.
2. *Trevesia.* The one species and variety of this genus found in southwestern China occur in the provinces Yunnan and Kweichow. This genus is widespread in tropical Asia.
3. *Tetrapanax.* A single species of this genus occurs in southern and western China, in the provinces Hunan, Szechuan, Yunnan, Kweichow, Kwangsi, and Kwangtung. It has also been recorded by other authors from Anhwei and Hupeh. Outside of China it occurs in Formosa only.
4. *Schefflera.* This large genus is common to the warmer parts of both hemispheres. Twenty-eight species and two varieties are recorded in the present study. Yunnan is the chief center of occurrence in China, with twenty-two species. From five to seven species are found in each of the provinces Kweichow, Kwangsi, and Kwangtung, and one to three in Chekiang, Fukien, Hainan, Kiangsi, Szechuan, and Sikang.
5. *Diplopanax.* This recently established monotypic genus is endemic in Kwangsi.

6. *Dendropanax.* This genus is common to the tropical regions of Asia and America, a few species extending beyond the tropics. It is essentially tropical and southern in China. Of the thirteen species and one variety found in China, eleven are recorded from Kwangsi, nine from Kwangtung, three from Hainan, and three from Kweichow. One or two are found in each of the following provinces: Fukien, Yunnan, Szechuan, Hunan, Kiangsi, Anhwei, and Chekiang. In China this genus extends to about 30° N., but it occurs north of this in Korea and Japan.

7. *Hedera.* This genus is found in Asia, Europe, and North Africa. The one variety found in China is fairly widespread. It is found mainly in western China from Kansu and Shensi in the north to Yunnan in the south and along the Yangtze Valley in central and eastern China.

8. *Brassaiopsis.* This is a tropical genus which extends from India to Malaysia. In China it is entirely confined to the southwestern part of the country. Of the thirteen species, almost all are found in Yunnan, while a few extend to the neighboring provinces, such as Szechuan, Kweichow, Kwangsi, and Hainan.

9. *Macropanax.* The two species of *Macropanax* are mainly characteristic of India. In China they are found in Yunnan and Hainan only.

10. *Merrilliopanax.* This new genus contains two species. One of them is common to northeastern India and Yunnan. The other is known from a single Yunnan collection.

11. *Nothopanax.* This genus is chiefly Australian. The three Chinese species are localized in the southwest, mainly in Yunnan, but the group is also represented in Hupeh, Szechuan, Sikang, and Kweichow.

12. *Acanthopanax.* This large eastern Asiatic and Himalayan genus is distinctly temperate in distribution and is well represented in all parts of China. It is found in all provinces from Manchuria south to Hainan Island, with the maximum development along the Yangtze Valley. Twenty-two species, twelve varieties, and three forms are recorded in this study. These are more or less evenly distributed throughout the different provinces. Ten or more are found in both Yunnan and Szechuan (including Sikang). About five species and varieties are found in each of the following provinces: Shensi, Kansu, Hopei, Chekiang, Anhwei, Kiangsi, Kwangsi, Kwangtung, and Kweichow. The other provinces have from one to three each.

13. *Kalopanax.* The single species (with two varieties) of this genus is widespread in China. Records are found in all provinces from Manchuria to Kwangtung except Hainan and Kwangsi in the south and Kansu and Shensi in the north. It also occurs in Japan.

14. *Heteropanax.* The three species and two varieties so far known in this genus are found in the southern provinces, Kiangsi, Yunnan, Kwangsi, Kwangtung, and Hainan. The genus is southern Asiatic in distribution.

15. *Pentapanax.* This genus occurs in southern Asia, Australia, and in tropical America. Seven species and one or two varieties are known in China. They are all confined to Yunnan except one or two from Szechuan, Sikang, and Anhwei.

16. *Aralia.* This large genus is characteristic of the temperate and tropical regions of Asia and America. Twenty species and two varieties are known in China. The genus is widely distributed all over China from Manchuria to Hainan. The species are especially well dispersed in the provinces along the Yangtze River and south to it. The maximum development is in Yunnan, Kwangtung, and Kwangsi.

17. *Panax.* This genus is found in the temperate regions of eastern Asia and North America. Of the two species known in China, one is probably confined to Manchuria, while the other, with its several varieties, is found mainly in southern, western, and central China.

ECONOMIC USES

The family Araliaceae yields a number of important drug plants. The ginseng, *Panax schin-seng* Nees, is a very famous Chinese tonic. The root bark of *Acanthopanax gracilistylus* W. W. Smith, its varieties, and possibly some of the related species, known as *wu-chia-pi,* is used in making a well known medicinal wine. The root of *Aralia cordata* Thunb., and the stems, leaves, and fruits of *Hedera nepalensis* var. *chinensis* Rehder are also used in Chinese medicine. The pith of *Tetrapanax papyriferus* Koch produces the rice paper, *tung-tsao,* which is used in medicine and is very extensively employed in making artificial flowers and for other purposes of decoration.

A number of timber trees are found in this family. *Kalopanax pictus* (Thunb.) Nakai is an important timber tree in China. It is widely scattered and common throughout most parts of China. A few species, such as *Schefflera octophylla* Harms, produce lumber that is used for making furniture and for other purposes. Many shrubs, particularly those of the genera *Acanthopanax, Nothopanax,* and *Aralia,* are valued as ornamentals.

NOMENCLATURE AND CITATIONS

In this treatment, *Panax* and all *Panax* compounds are treated as masculine, as this is provided for specifically in the last edition of the International Rules of Botanical Nomenclature. *Panax* classically is masculine, but Linnaeus (24) used it as neuter. Most botanists did the same until Franchet in 1886 and Harms in 1894 (17) consistently used the masculine form for *Panax* and all the *Panax* compounds; this latter usage is correct and should be universally adopted.

The citations of specimens at the end of the descriptions are given in chronological order. The dates of the specimens cited are omitted to conserve space. Series numbered by institutions are cited after the collector whenever the collector is indicated on the labels. Geographic subdivisions are based on provinces, with Hainan separated from Kwangtung. They are generally given in the following order: Kansu, Shensi, Shansi, Honan, Hopei, Jehol, Manchuria, Shangtung, Kiangsu, Chekiang, Anhwei, Kiangsi, Hunan, Hupeh, Szechuan, Sikang, Tibet, Yunnan, Kweichow, Kwangsi, Kwangtung, Hainan, and Fukien, beginning from the northwest along the Yellow River, extending to the east and then along the Yangtze River to the west and finally along the Pearl River, ending in the southeast. In this sequence phytogeographically related provinces are generally held together. Precise localities are given according to what data are available in the field notes. However, no attempt is made to standardize the local place names, as Chinese characters are mostly not available. Sikang, recently established as a province, was formed from the special District of Sikang and parts of western Szechuan. In many instances it has been considered expedient to enumerate plants from Sikang and Szechuan together, as from the place names originally given in the field notes it is often difficult or impossible to make out their exact locations according to the new provincial boundaries. Some doubt may thus be

found in places quoted as southeastern Tibet, western Szechuan, and northern Yunnan.

Abbreviations used in designating the herbaria in which cited specimens are deposited are as follows:

AA	Arnold Arboretum of Harvard University.
CCC	Canton Christian College = Lingnan University.
G	Gray Herbarium of Harvard University.
LU	Lingnan University.
NY	Britton Herbarium, New York Botanical Garden.
UN	University of Nanking.
W	United States National Herbarium.

ACKNOWLEDGMENTS

This work was prosecuted under the direction and supervision of Prof. E. D. Merrill, to whom I wish to express my sincere gratitude for guidance and encouragement, and whose financial assistance has enabled me to complete the task. Grateful acknowledgment is due to the Associated Boards for Christian Colleges in China for financial assistance rendered to me in the form of scholarships. To Prof. A. Rehder, Dr. A. C. Smith, Dr. F. P. Metcalf, Dr. L. M. Perry, and Dr. L. Croizat I am obliged for their many practical suggestions and criticisms during the course of this study. To other members of the Arnold Arboretum staff, who have directly or indirectly facilitated this work, I wish to extend my thanks. Lastly I am indebted to the curators of the several herbaria listed above, who courteously loaned material for this study. Particular thanks are due to Dr. H. A. Gleason, Curator of the Herbarium of the New York Botanical Garden, for his generosity in loaning not only all the eastern Asiatic herbarium specimens of Araliaceae, but at the same time permitting me to borrow all the specimen covers with the majority of published items appertaining to the Asiatic species of the family actually in place in the herbarium.

ARALIACEAE

Calyx-tube adnate to the ovary, the margin undulate or denticulate. Petals 5–10, valvate or imbricate, usually free, sometimes connate or calyptrate. Stamens usually as many as the petals and alternate with them, or twice as many as the petals, or indefinite, inserted with the petals at the edge of the disk, the filaments filiform or ligulate, the anthers oblong or ovate, versatile, introrse, the locules 2, longitudinally dehiscent. Disk epigynous, fleshy, shortly conical or annular. Ovary inferior, 1–15-celled, the styles as many as the locules, sometimes distinct, usually partly or wholly connate into a column or short cone, the stigmas terminal, the styles occasionally suppressed, the stigmas sessile on the tip of the ovary. Ovules solitary, pendulous from the apex of each cell, anatropous. Fruit baccate or drupaceous, the exocarp usually fleshy, the endocarp forming distinct cartilaginous or membranaceous pyrenes or hardly distinct from the exocarp. Seeds solitary in pyrenes, usually laterally compressed, endospermic, with small embryo, the endosperm uniform or ruminated.

Perennial herbs or shrubs or trees, often prickly, sometimes scandent. Leaves alternate, petiolate, simple or pinnately compound or decompound or digitately compound. Stipules adnate to the petioles, often connate into a sheath, sometimes hardly distinct or wanting. Flowers regular, mostly small, hermaphrodite, polygamous, or dioecious, usually in umbels or heads, rarely racemose or spicate,

the umbels or heads solitary, racemose, corymbose, paniculate, or umbellate. Bracts subtending the branches of inflorescence small, deciduous or persistent. Bracteoles at the base of the pedicels small, usually inconspicuous. Pedicels continuous with calyx or articulate under the flower.

About 60 genera and more than 800 species in the tropical and temperate regions of both hemispheres. Seventeen genera and about 120 species are found in China.

Key to the Chinese Genera

A. Petals valvate in the bud. (Tribe I. Schefflereae Harms.)
B. Stamens very numerous, often 50–70, ovary-cells indefinite .....1. *Tupidanthus*.
BB. Stamens 10 or fewer, ovary-cells definite, 1–12.
C. Ovary 4–12-celled.
D. Leaves simple or pinnately lobed.
E. Ovary 7–12-celled; petals and stamens 7–12; styles united into a short column; leaves pinnately 5–9-lobed .....2. *Trevesia*.
EE. Ovary 5-celled; petals and stamens 5–12; styles more or less distinct; leaves generally simple, sometimes palmately 2–3-lobed.
F. Erect shrubs; leaves often with characteristic transluscent glands; endosperm uniform .....6. *Dendropanax*.
FF. Woody vines climbing by means of aerial roots; leaves without glands; endosperm ruminate .....7. *Hedera*.
DD. Leaves digitately compound.
E. Unarmed; ovary 5–7-celled, styles united into a column or stigmas sessile. 4. *Schefflera*.
EE. Prickly, rarely unarmed; ovary 2-, occasionally 3–5-celled, styles 2–5, distinct or connate at the base .....12. *Acanthopanax*.
CC. Ovary 1–2-celled, seldom 3-celled.
D. Ovary 1-celled; stamens 10; leaves simple .....5. *Diplopanax*.
DD. Ovary 2–3-celled; stamens mostly 4–5; leaves simple or compound.
E. Leaves simple or palmately lobed or digitately compound.
F. Leaves simple or palmately lobed.
G. Armed or unarmed trees, rarely shrubs; styles united into a column.
H. Armed trees; flowers perfect; endosperm uniform .....13. *Kalopanax*.
HH. Armed or unarmed trees or shrubs; flowers mostly polygamous; endosperm uniform or ruminate .....8. *Brassaiopsis*.
GG. Unarmed shrubs; styles distinct or slightly connate at the base.
H. Leaves palmately 7–12-lobed .....3. *Tetrapanax*.
HH. Leaves not lobed, or, if so, the lobes 2–5 only.
I. Simple and lobed and digitately 3–5-foliolate leaves often present on the same plant; pedicels distinctly articulate; fruits mostly flattened. 11. *Nothopanax*.
II. Leaves not lobed or only shallowly 3-lobed; pedicels inarticulate; fruits subglobose .....10. *Merrilliopanax*.
FF. Leaves digitately compound.
G. Unarmed shrubs; pedicels distinctly articulate under the flower.
H. Styles distinct or connate at base; fruit often flattened; endosperm uniform .....11. *Nothopanax*.
HH. Styles united into a column; fruit ovoid, ribbed; endosperm ruminate. 9. *Macropanax*.
GG. Prickly or rarely unarmed shrubs; pedicels inarticulate or only very obscurely jointed.
H. Umbels in large compound panicles; flowers mostly polygamous; styles united into a column; endosperm uniform or ruminate ...8. *Brassaiopsis*.
HH. Umbels solitary or few together or forming large terminal panicles; flowers perfect or polygamous; styles distinct or connate at the base only; endosperm uniform .....12. *Acanthopanax*.
EE. Leaves pinnately compound or decompound .....14. *Heteropanax*.

AA. Petals imbricate in the bud. (Tribe II. Aralieae Harms.)
B. Herbaceous or woody plants; leaves pinnately compound or decompound; styles 2–5.
C. Herbs, shrubs, or small trees; leaves 1–3-pinnate; flowers umbellate; ovary 2–5-celled, the styles 2–5, distinct .....16. *Aralia*.
CC. Trees or large scandent shrubs; leaves 1-pinnate; flowers racemose or umbellate; ovary 5-, sometimes 7–8-celled, the styles 5, more or less united ....15. *Pentapanax*.
BB. Herbs; leaves digitately compound; ovary 2-, sometimes 3-celled, the styles 2 or 3, distinct .....17. *Panax*.

I. Tupidanthus Hooker f. & Thomson

Tupidanthus Hooker f. & Thomson, Bot. Mag. **82**: *t. 4908*. 1856.

A glabrous shrub, at first erect, afterwards a lofty climber. Leaves large, digitately compound, the leaflets glabrous, entire, coriaceous, petiolulate, the stipules connate within the petioles. Flowers large, umbellate, the umbels few-flowered, arranged in a compound umbel or small panicle, the pedicels thick, not articulate under the flower. Calyx margin obsolete. Petals closely connate into a calyptra, early deciduous. Stamens very many, in two or more series, the anthers oval-oblong. Ovary many-celled. Fruit drupaceous, globose, depressed, leathery-fleshy; seeds numerous; endosperm uniform.

One species in tropical Asia, extending from India to southwestern China and Indo-China.

1. **Tupidanthus calyptratus** Hook. f. & Th. Bot. Mag. **82**: *t. 4908*. 1856; Seem. Jour. Bot. **2**: 240. 1864, Revis. Heder. 6. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 740. 1879; Hemsl. Jour. Linn. Soc. Bot. **34**: 476. 1900; Lévl. Cat. Pl. Yun-Nan 11. 1915; Viguier in Lecomte, Fl. Gén. Indo-Chine **2**: 1170. *f. 139. no. 1, 2, 3*. 1923; Chung, Mem. Sci. Soc. China **1**: 185. 1924.

A scandent woody plant, 15–30 m. tall, with 7–9-foliolate leaves, the leaflets obovate or oblong-lanceolate, entire, the flowers in umbels of 3–7 flowers each, forming a small panicle or compound umbel with very stout pedicels. Leaves petiolate, stipulate; petioles terete, glabrous, 12–35 cm. long; stipules connate within the petiole, forming a short sheath; leaflets coriaceous, petiolulate, 12–20 cm. long, 4–8 cm. wide, glabrous on both surfaces, the apex shortly acuminate, the base attenuate, the margins entire, the lateral nerves 20–30 or more on both sides, oblique, distinct on both surfaces; petiolules 3–5 cm. long. Inflorescence terminal, the flowers arranged in umbels forming a small panicle or an irregularly branched compound umbel, the main umbel about 3-branched, the branches 6–8 cm. long, very stout, with large, ovate, coriaceous bracts at the base, 1.5 cm. long, the umbels 3–7-flowered, the pedicels stout, glabrous, 2–3 cm. long, the flowers 1.5–3 cm. across. Calyx-tube coriaceous, glabrous, indistinctly dentate. Petals forming a calyptra, early deciduous. Stamens very numerous, about 50–70, crowded, the filaments thick, 3 mm. long. Ovary many-celled, the stigmas very many, sessile, radiating, fusing to form a connate longitudinal or sometimes 3-rayed stylar tract along the disk, its branches usually appearing cleft at the ends. Disk broad, flat, obscurely lobed, depressed in the center. Fruit globose, depressed, 2.5–3.5 cm. across.

Yunnan: Szemao, *Henry 12298* (AA, NY), *12298A* (W), and *12298B* (NY); between Ban Man To and Szemao, *J. F. Rock 2757* (AA, W); Tsang Yuan, *C. W. Wang 73240* (AA); Fo-hai Hsien, *C. W. Wang 73932* (AA); Nan Chiao, *C. W. Wang 75228* (AA); Fo-hai Hsien, Meng-ban, Shan-shien, *C. W. Wang 76202* (AA).
Additional Distribution: India, Burma, and Indo-China.

II. Trevesia Visiani

Trevesia Vis. in Giorn. Tosc. Sci. Med. Fis. Nat. **1**: 72. 1840, Mem. Accad. Torin II. **4**: 262. 1842.

Shrubs or small trees, prickly or unarmed, glabrous or stellate-tomentose. Leaves large, palmately lobed or digitately compound, the leaflets long-petiolulate

with free blades, the petiolules often united within a foliaceous expansion at the apex of the petiole, the stipules connate within the petiole bases or obsolete. Flowers in umbels, the umbels paniculate, the bracts small, persistent or deciduous, the pedicels not articulate under the flower. Petals 7–12, valvate, thickish, often united to form an early deciduous calyptra. Stamens as many as the petals, the anthers oval. Ovary 7–12-celled, the styles united into a short column. Fruit ovoid; seeds compressed; endosperm uniform.

Two species extending from Eastern India to Malaya and Polynesia.

Type species: *Trevesia palmata* (Roxb.) Vis. (*Gastonia palmata* Roxb.).

1. **Trevesia palmata** (Roxb.) Vis. Mem. Accad. Torin II. **4:** 262. 1842; Seem. Jour. Bot. **5:** 286. 1867, Revis. Heder. 77. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2:** 732. 1879; Dunn, Jour. Linn. Soc. Bot. **39:** 502. 1911; Diels, Notes Bot. Gard. Edinb. **7:** 78. 1912; Viguier in Lecomte, Fl. Gén. Indo-Chine **2:** 1180. *f. 140.* 1923; Chung, Mem. Sci. Soc. China **1:** 185. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **17:** 11, 397. 1929–30; Rehder, Jour. Arn. Arb. **15:** 113. 1934; Chun, Sunyatsenia **4:** 247. 1940.

Gastonia palmata Roxb. Hort. Bengal. 33, *nomen nudum.* 1814, Fl. Ind. **2:** 407. 1824; Lindl. Bot. Reg. **11:** *t. 894.* 1825.

Gilibertia palmata DC. Prodr. **4:** 256. 1830.

Fatsia Cavalerieri Lévl. Bull. Acad. Géogr. Bot. **24:** 144. 1914, Fl. Kouy-Tchéou 34. 1914.

A slender tree, 3–5 m. tall, with large, deeply palmately 5–9-lobed leaves, the lobes serrate or again lobed, the flowers in umbels forming large panicles. Branches prickly and tomentose. Leaves large, petiolate, stipulate, about 30–45 cm. across, coriaceous, glabrous or with scattered stellate hairs on both surfaces, in young plants often digitately compound, the lobes lanceolate, acuminate, serrate or again lobed, the lateral nerves distinct on both surfaces, the tertiary nerves obscure above, the petiolules when present with an entire wing; petioles often prickly, 30–45 cm. long; stipules united into a 2-lobed sheath within the petioles. Inflorescence in panicles, 45 cm. long, ferruginous-tomentose when young, the lower branches compound, the bracts oblong, obtuse, 2.5 cm. long, caducous; flowers in many-flowered umbels 4.5 cm. across, the peduncles 4–9 cm. long, the pedicels 1.5–2 cm. long. Calyx ferruginous-tomentose, 4 mm. long, the margin inconspicuously 10-dentate. Petals 6–10, 5 mm. long, slightly tomentose outside. Stamens 6–10, the filaments 5 mm. long. Ovary 8–10-celled, the disk flattened, the styles coalescing into a grooved cone, the stigmas bluntly toothed. Fruit subglobose, 1 cm. across, glabrate, the ribs not prominent, the style-cone persistent, stout, 4 mm. long.

YUNNAN: Szemao, *Henry 11757* (AA, NY, W); between Muang Pan and Muang Hun, *J. F. Rock 2395* (AA, W), *2398* (AA, W); between Muang Hun and Muang Hai, *J. F. Rock 2402* (AA, W); between Hsinfu and Kuan-ni, *J. F. Rock 2949* (AA, W); Fo Hai, *C. W. Wang 74910* (AA); Lan-tsung Hsien, *C. W. Wang 76594* (AA), *76744* (AA); Shunning, Lomawe, *T. T. Yü 15899* (AA).

KWEICHOW: Houa-kiang, *J. Cavalerie 2144* (holotype of *Fatsia Cavaleriei* Lévl., photo. and merotype, AA).

ADDITIONAL DISTRIBUTION: India.

The leaves are variable in size and shape. C. B. Clarke (in Hook. f. Fl. Brit. Ind. 2: 732. 1879) distinguishes the form with palmate leaves and entire-winged petiolules as var. *cheirantha,* which is also recorded from China by Hemsley (Jour. Linn. Soc. Bot. **34:** 476. 1899). *Rock 2402* and *Wang 76594* are intermediate in the general shape of the leaves between the variety, represented by such specimens as *Henry 11757* and *Wang 76744,* and the typical form. Thus the status of Clarke's trinomial is questionable and his variety is not accepted as appertaining to Chinese forms. The material from Kweichow has the leaves generally smaller, more coriaceous, and with margins more lobulate than those of the specimens from other regions.

1a. **Trevesia palmata** var. **costata** var. nov.

A typo praecipue fructu valde 10-costato differt.

A low shrub. Leaves large, long-petiolate, stipulate, to 60 cm. across, palmately 7–9-lobed, coriaceous, glabrous or scattered-stellate-tomentose on both surfaces, the lobes oblong-lanceolate, acute, serrate, the lateral nerves distinct on both surfaces, the tertiary nerves obscure above; petioles 60 cm. or more long, terete, grooved, with occasional scattered prickles; stipules united into a 2-lobed sheath within the petiole. Inflorescence and flower unknown. Fruit subglobose, glabrate, 5 cm. across, prominently 10-ribbed, 10-seeded, the seeds laterally compressed, the style persistent, stout, 2 mm. long.

YUNNAN: Lan-tsang Hsien, *C. W. Wang 76520* (AA); Fo Hai, *C. W. Wang 76004A* (TYPE, AA); Che-li Hsien, Dah-meng-lung, *C. W. Wang 77895* (AA).

Differs from the typical form primarily in the prominently ribbed fruit. With better material it may prove to be worthy of specific rank.

III. TETRAPANAX K. Koch

Tetrapanax K. Koch, Wochenschr. Gärtn. Pflanzenk. **2**: 371. 1859.

Unarmed, stoloniferous shrubs. Leaves large, long-petiolate, palmately lobed, the lobes acute, serrate, stellate-ferruginous-tomentose beneath, the stipules 2, awl-shaped, prominent. Flowers in umbels, the umbels in large terminal panicles, the pedicels not articulated under the flowers. Calyx-margin obsolete. Petals 4–5, ovate, acute, valvate. Stamens 4–5, the filaments elongate, the anthers elliptic-ovate. Styles 2, erect, recurved at their tips. Ovary 2-celled, the cells 1-ovulate. Fruit baccate, drupaceous.

One species in southern China and Formosa.

1. **Tetrapanax papyriferus** (Hook.) K. Koch, Wochenschr. Gärtn. Pflanzenk. **2**: 371. 1859; Seem. Jour. Bot. **6**: 58. 1868, Revis. Heder. 88. 1868; Harms ex Diels, Bot. Jahrb. **29**: 486. 1900; Chung, Mem. Sci. Soc. China **1**: 186. 1924; Hand.-Maz. Symb. Sin. **7**: 690. 1933; Rehder, Jour. Arn. Arb. **15**: 113. 1934; Merr. & Chun, Sunyatsenia **2**: 13. 1934.

Aralia papyrifera Hook. Jour. Bot. Kew Gard. Misc. **4**: 53. *t. 1, 2.* 1852; Curtis Bot. Mag. **82**: *t. 4897.* 1856.

Fatsia papyrifera Benth. & Hook. f. ex Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 341. 1888; Lévl. Fl. Kouy-Tchéou 34. 1914, Cat. Pl. Yun-Nan 11. 1915; Courtois, Notes Bot. Chine Mus. Heude **2**: 55. 1933.

Aralia Mairei Lévl. Rep. Spec. Nov. **13**: 342. 1914, Fl. Kouy-Tchéou 34. 1914, Cat. Pl. Yun-Nan 11. 1915.

A shrub 1–2 m. tall, with large, palmately 7–12-lobed leaves and large, terminal, compound, densely tomentose panicles of umbels. Leaves long-petioled, stipulate, to 50 cm. or more across, chartaceous to subcoriaceous, glabrous above, densely stellate-ferruginous-tomentose beneath, the lobes 7–12, free to the lower ⅓ the length of the blade, ovate-oblong, the apex acuminate, the margins entire to coarsely toothed, the lateral nerves oblique, distinct on both surfaces, the tertiary nerves slightly impressed above; stipules 2, awl-shaped, acuminate, prominent, united at base within the petioles; petioles long, terete, glabrous, to 50 cm. or more long. Inflorescence a large terminal compound panicle, to 50 cm. long, densely tomentose, the branches ascending, 20 cm. long, the bracts elongate, acuminate, 2 cm. long, the flowers yellowish white, in umbels, the umbels many-flowered, 12 cm. in diameter, the peduncles 1.2 cm. long, the bracteoles linear, 1.2 cm. long, 2 mm. wide; pedicels 4 mm. long. Calyx densely tomentose, 1 mm. long, the margin obsolete. Petals 4–5, 2 mm. long, tomentose outside, separate or united to form an early deciduous calyptra. Stamens 4–5, the filaments 3 mm. long. Ovary 2-celled, the styles 2, distinct, erect, recurved at the tip. Fruit a drupe.

HUNAN: Tschangscha, *Handel-Mazzetti 459* (AA).

SZECHUAN: Pechuan Hsien, *W. P. Fang 5567* (AA); Pachow Fu, *F. T. Wang 22674* (AA); O-pien Hsien, *Y. S. Liu 2262* (AA).

YUNNAN: Mentze, *Henry 11358* (AA, NY, W); Valley of Liu-Kiang, *E. E. Maire* (holotype of *Aralia Mairei* Lévl., photo. in AA).

KWEICHOW: Ta Ho Yen, Fan Chin Shan, *Steward, Chiao, & Cheo 740* (AA, NY).

KWANGSI: Yung Hsien, Ta Tze Tseun, *Steward & Cheo 1200* (AA).

KWANGTUNG: Ying Tak, Wan Tong Shan, Tai Tsan, *W. T. Tsang & K. C. Wong 2980 = LU 14841* (LU); Lokchong, *N. K. Chun 41948* (NY), *42295* (NY); Kook Kiang, Yao Shan, *C. Wang 31548* (AA, NY).

ADDITIONAL DISTRIBUTION: Formosa.

IV. SCHEFFLERA J. R. & G. Forster

Schefflera J. R. & G. Forst. Char. Gen. 45. *t. 23.* 1775.

Sciodaphyllum P. Br. Hist. Jam. 190. *t. 19. f. 1, 2.* 1756.

Agalma Miq. Fl. Ind. Bat. **1**(1): 752. *t. 11.* 1855.

Heptapleurum Gaertn. Fruct. **2**: 472. *t. 178.* 1791.

Shrubs or trees, often subscandent, glabrous or tomentose, unarmed. Leaves digitately compound (in our species), the stipules connate within the petiole. Flowers in umbels, racemes, or globose heads, these arranged in panicles or compound racemes, the bracts hairy, deciduous or persistent, the pedicels not articulated under the flower. Calyx-margin entire or 5-dentate. Petals 5–7, valvate. Stamens as many as petals, the anthers ovate. Ovary 5–7-celled, rarely less. Styles united into a column or none, the stigmas distinct, sometimes sessile. Fruit globose or ovoid, 5–7-seeded, angled or not; seeds laterally compressed; endosperm uniform or slightly ruminated.

Between 300 and 400 species widely distributed in the tropics of both hemispheres.

Type species: *Schefflera digitata* J. R. & G. Forst. of New Zealand.

The name *Schefflera* is now generally accepted by most authors for species of both the Old and New World tropics. While some authors continue to retain some of the subdivisions, such as *Heptapleurum* Gaertn., as of generic rank, the characters are such that for practical purposes it seems best to retain *Schefflera* in the wider sense. Attention is called to the fact that *Sciodaphyllum* P. Br. is the oldest valid name for this group, it having been based on specimens from Jamaica. Since it seems to be desirable to unite all species in a single more or less collective group, the name *Schefflera* should be conserved, as it is very well known and extensively used. For a consideration of the matter, see A. C. Smith, Trop. Woods **66**: 3. 1941.

KEY TO SPECIES AND VARIETIES

A. Flowers sessile or short-pedicellate, arranged in compact heads. (Section I. *Cephalo-schefflera* Harms.)

B. Leaflets 6, broadest below the middle, the margins entire or sparingly serrulate, the tertiary nerves inconspicuous beneath; heads arranged in a panicle ....1. *S. chinensis.*

BB. Leaflets 7, generally broadest above the middle, the margins entire, the tertiary veins conspicuous beneath; heads arranged in a raceme .....2. *S. Wangii.*

AA. Flowers more or less long-pedicellate, arranged in racemes or umbels. (Section II. *Euschefflera* Harms.)

B. Styles connate into a long or short cylindric column, always evident. (Subsection I. *Agalma* Harms.)

C. Flowers in umbels, the umbels in racemes or panicles.

D. Styles connate below, radiate above, their tips reflexed .....3. *S. hypoleucoides.*

DD. Styles connate into a column throughout their whole length.

E. Style-column very short, less than 1 mm. long in fruit .....4. *S. octophylla.*

EE. Style-column exceeding 1 mm. in fruit.

F. Inflorescence small, less than 15 cm. long; leaflets linear-lanceolate, membranaceous .....5. *S. Bodinieri.*
FF. Inflorescence large, 30–40 cm. or more long; leaflets ovate to lanceolate, chartaceous to coriaceous.
G. Leaflets large, 20–55 cm. × 8–25 cm. .....6. *S. macrophylla.*
GG. Leaves small, the leaflets less than 20 cm. long and 8 cm. wide.
H. Petiolules subequal in length, 1–3.5 cm. long.
I. Leaflets with tertiary veins more or less impressed above.
J. Leaflets oblanceolate to lanceolate, the tertiary veins deeply impressed above .....7. *S. impressa.*
JJ. Leaflets ovate-lanceolate, the tertiary veins slightly impressed above. 8. *S. producta.*
II. Leaflets with tertiary veins projecting above .....9. *S. elata.*
HH. Petiolules very unequal in length, 1–9 cm. long.
I. Leaflets minutely stellate-tomentose beneath .....10. *S. minutistellata.*
II. Leaflets with scattered loosely stellate-tomentose hairs or glaucous beneath .....11. *S. hypoleuca.*
CC. Flowers in simple racemes or paniculate, never arranged in umbels.
D. Leaflets many, generally 12–16.
E. Leaflets about 16, large, 8–15 cm. × 2–8 cm., the veins projecting above. 12. *S. hainanensis.*
EE. Leaflets fewer than 16, small, 4–10 cm. × 2–4 cm., the veins impressed above. 13. *S. Metcalfiana.*
DD. Leaflets few, generally 5–7.
E. Leaflets more or less pubescent beneath.
F. Leaflets minutely and distinctly stellate-pubescent beneath, unequal in size, the margins strictly entire .....14. *S. diversifoliolata.*
FF. Leaflets densely or rather coarsely stellate-pubescent beneath, more or less equal in size, entire or toothed.
G. Flowers sessile, the petals glabrous without; veins not impressed above, the reticulum beneath usually obscured by the very dense indumentum.
H. Indumentum white .....15. *S. Delavayi.*
HH. Indumentum brown .....15a. *S. Delavayi* var. *ochraceum.*
GG. Flowers pedicellate, the petals densely tomentose without; veins impressed above, the reticulum very prominent beneath, not at all obscured by the somewhat scattered indumentum .....16. *S. Wardii.*
EE. Leaflets glabrous.
F. Petiolules short, mostly 1 cm. long or less, rarely 1.3 cm. long. 17. *S. shweliensis.*
FF. Petiolules mostly 1.5 cm. or longer.
G. Leaflets narrowly oblong to lanceolate, the lateral nerves 12–20 on each side.
H. Leaflets 15–17 cm. × 5–5.5 cm., the lateral nerves 16–22, oblique. 18. *S. multinervia.*
HH. Leaflets 15–24 cm. × 4–5 cm., the lateral nerves 12–20, ascending. 19. *S. dumicola.*
GG. Leaflets oblong to oblanceolate, the lateral nerves 8–12 on each side.
H. Leaflets small, 15 × 7 cm. or less .....20. *S. Hoi.*
HH. Leaflets large, 30 × 10 cm. .....20a. *S. Hoi* var. *macrophylla.*
BB. Styles none, the stigmas sessile. (Subsection II. *Heptapleurum* Harms.)
C. Flowers sessile or subsessile .....21. *S. glomerulata.*
CC. Flowers distinctly pedicellate.
D. Leaflets oblong to obovate, broadest above the middle.
E. Leaflets 2–5, very slenderly caudate-acuminate, the acumen up to 2.5 cm. long, more or less falcate .....22. *S. tenuis.*
EE. Leaflets 5 or more, obtuse to short-acuminate.
F. Leaflets 5–6, short-acuminate, 5.5 × 3 cm., the petioles short, 5–6 cm. long. 23. *S. yunnanensis.*
FF. Leaflets 7–9, obtuse to acute, 9 × 4 cm., the petioles long, 12–15 cm. 24. *S. arboricola.*
DD. Leaflets elliptic to oblong, not broadest above the middle.
E. Leaflets oblong-lanceolate, acuminate, three times as long as broad; a low shrub. 25. *S. kwangsiensis.*

EE. Leaflets elliptic to oblong, obtuse to acuminate, 1½ to 2½ times as long as broad; shrubs or trees.
F. Leaflets three ..... *26. S. fukienensis.*
FF. Leaflets 5–7.
G. Fruits ovoid, distinctly 5-angular, the disk conical ..... *27. S. venulosa.*
GG. Fruits globose, indistinctly 5-angular, the disk depressed-conical. *28. S. khasiana.*

1. **Schefflera chinensis** (Dunn) comb. nov. Fig. 1.

Oreopanax chinense Dunn, Jour. Linn. Soc. Bot. **35:** 500. 1903, op. cit. **39:** 471. 1911; Chung, Mem. Sci. Soc. China **1:** 186. 1924.

A tree, about 10 m. tall, with 6-foliolate leaves, ovate-oblong leaflets, and a terminal panicle formed of pedunculate globose heads of short pedicellate fruits.

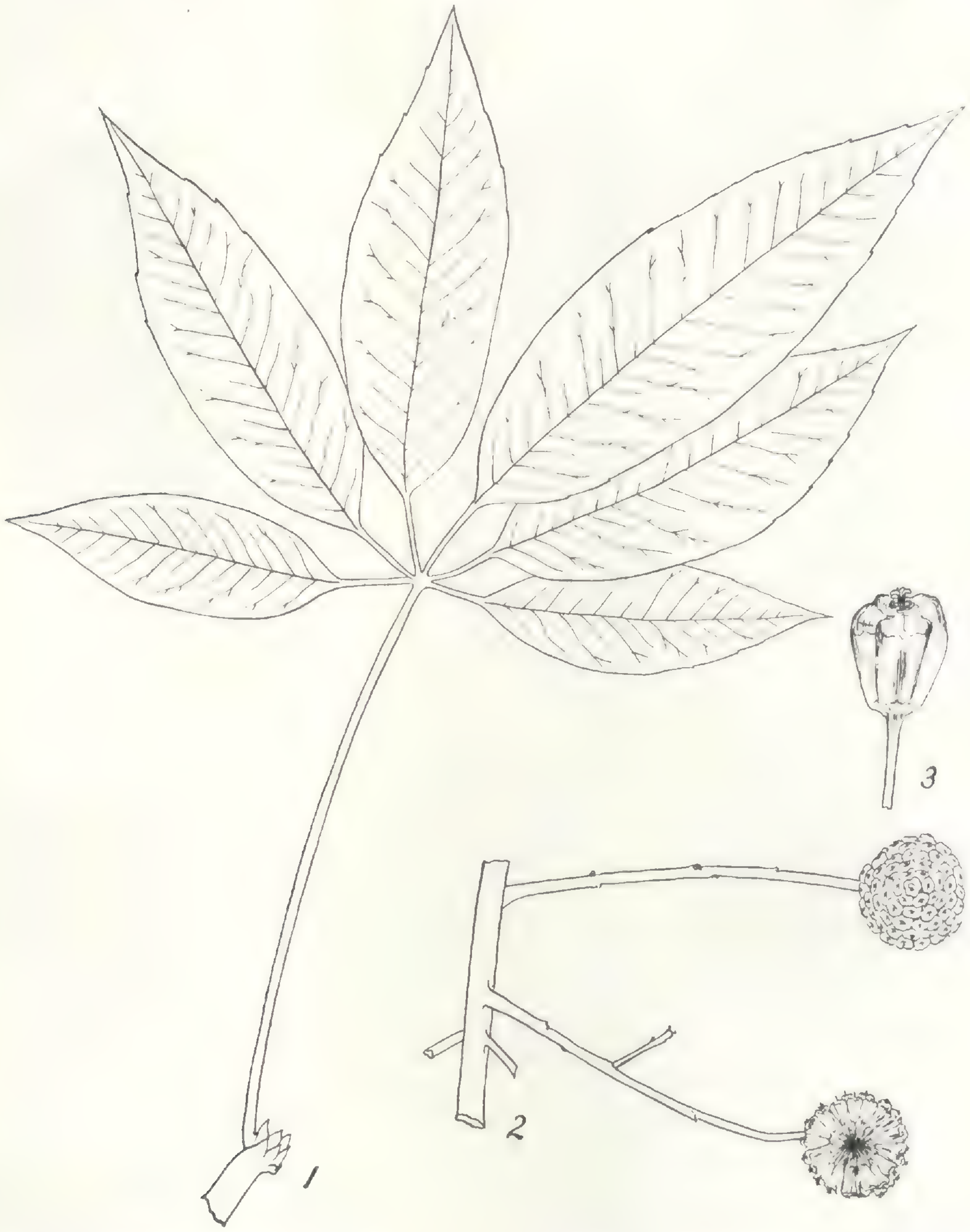


Fig. 1. *Schefflera chinensis; 1.* leaf, × ½; *2.* portion of infructescence, × ½; *3.* fruit, × 3.

Leaves petiolate; petioles slender, glabrous, terete, about 10–17 cm. long; leaflets subcoriaceous, petiolulate, glabrous above, sparsely stellate-tomentose beneath, ovate-oblong, 10–15 cm. or more long, 3.5–5 cm. or more wide, generally broadest below the middle, the apex acuminate, the base broad-cuneate to almost rounded, the margins entire or sparingly serrulate, slightly revolute, the lateral nerves 10–12 on each side, slightly oblique, prominent beneath, the tertiary veins obscure on both surfaces; petiolules glabrous, 0.5–3 cm. long. Inflorescence in a terminal panicle, 30 cm. long, densely tomentose, the lateral branches to 15 cm. long, the flowers subsessile or short-pedicellate, attached to the tip of the peduncle among a group of small hairy bracteoles, in compact globose heads, the heads 1.4 cm. across, terminal or few racemosely arranged on the branches, the peduncles 2 cm. or more long, spreading, the bracts caducous. Calyx densely tomentose, the margin subentire. Petals 5, densely tomentose outside, glabrous inside. Stamens 5. Ovary 5-celled, the styles 5, erect, connate below. Fruit subglobose, angular, 5-celled, sparsely tomentose to glabrous, about 5–6 mm. across, the pedicels 3–5 mm. long, tomentose, the disk small, 2.5 mm. across, the styles 5, united halfway below and radiating and reflexed above, the endosperm ruminate.

YUNNAN: Szemao, *Henry 12939* (ISOTYPE, NY, W); Shang-pa, *H. T. Tsai 59089* (AA).

Dunn describes this as a species of *Oreopanax,* a genus confined mainly to tropical America. This plant, together with *Schefflera Wangii* Li, differs from other Chinese species of *Schefflera* in having globose heads of compactly arranged short-pedicellate fruits. In my judgment, these two species belong to *Schefflera* rather than to *Oreopanax,* in spite of the fact that the endosperm in both cases is ruminate, as noticed by Dunn for *S. chinensis.* Though the endosperm of *Schefflera* is generally considered as uniform, I have found certain other species, such as *S. Bodinieri* (Lévl.) Rehder, having slight ruminations. The endosperm of the two species under discussion is only slightly ruminate.[1] In these characters and in general habit, these two species clearly belong to the genus *Schefflera.*

Schefflera chinensis and *S. Wangii* are related to *S. cephalota* (Clarke) Harms of India and Malacca, but differ from it in the slender petiolules, the presence of bracteoles in the heads, and the smaller disks. Henry mentions having collected only small leaves. The specimens at the herbarium of the New York Botanical Garden, although bearing the same number as those at Kew (photographs by R. C. Ching in NY), are under different labels and may represent distinct collections. Dunn states that the leaflets are entire, but I note that most of them are remotely serrulate, which is also borne out by the photographs of the Kew specimens taken by Ching. *Tsai 59089* is a young flowering specimen with 2 leaflets measuring 30 × 16 cm. The margins are entire and revolute. Description of the flower given above is based on this specimen.

2. **Schefflera Wangii** sp. nov.

Arbor parva, circa 5 m. alta. Foliis 7-foliolatis petiolatis; petiolis gracilibus glabris teretibus circa 15 cm. longis; foliolis coriaceis petiolulatis, supra glabris, subtus sparse stellato-tomentosis vel glabris, inferioribus minoribus ovato-oblongis, 8 × 3.5 cm., medianis majoribus oblongo-ellipticis, 13 × 6 cm., caeteris forma magnitudine intermediis, apice acuminatis, basi attenuatis, pro more ultra medium latioribus, margine integris revolutis, nervis lateralibus utrinsecus 8–10, adscendentibus, subtus prominentibus, venis tertiariis supra obscuris, subtus prominentibus; petiolulis glabris 1–4 cm. longis. Floribus ignotis. Inflorescen-

[1] *Schefflera* differs fundamentally from *Oreopanax* in its flowers being hermaphrodite, with 5–7 styles, while in *Oreopanax* the flowers are polygamo-dioecious or rarely polygamo-monoecious, and the styles in male flowers are one or two only.

tiis fructigeris in racemo axillari subterminali e circa 13 capitulis pedunculatis, compactis, globosis, fructibus plurimis brevipedicellatis, rhachibus circa 18 cm. longis, tomentosis vel glabrescentibus, capitulis 1.5–2 cm. crassis, pedunculis 1.3–5 cm. longis patentibus, bractea triangulari basali 5 mm. longa, 1–4 bracteolis superioribus minoribus fultis. Fructu globoso, obscure pentagono, 5-loculari, sparse tomentoso vel glabro, circa 5 mm. crasso, pedicellis 3–4 mm. longis tomentosis, in apicem pedunculi inter bracteolas parvas pubescentes confluentibus, disco minimo 1–1.5 mm. crasso, stylis 5, in columnam brevem connatis, supra reflexis, albumine leviter ruminato.

YUNNAN: Shun-ming Hsien, *C. W. Wang 71952* (AA); Cheng-kang Hsien, *C. W. Wang 72364* (TYPE, AA), March 1936.

This species is closely related to *S. chinensis* (Dunn) Li, which differs from other Chinese species of the genus in the fruits being arranged in compact heads. It can be distinguished from the latter by its seven leaflets with entire margins, more ascending lateral nerves, and tertiary veins conspicuous beneath; the leaflets are generally broadest above the middle. Moreover, the heads are smaller and with fewer fruits, and arranged in subterminal racemes. In the other species, the heads are arranged in a large terminal panicle with the branches mostly compound. *Wang 71952* is similar to the type except that some of the leaflets have a few deep incisions and are somewhat less pubescent beneath.

3. **Schefflera hypoleucoides** Harms, Rep. Sp. Nov. **16:** 246. 1919; Chung, Mem. Sci. Soc. China **1:** 186. 1924.

A tree 7–15 m. in height, with 7-foliolate leaves, oblong to lanceolate, acuminate leaflets, and large terminal panicles, the flowers in umbels, singly or racemosely arranged on the branches. Leaves long-petiolate, the petioles glabrous to subglabrous, terete, to 30 cm. long; leaflets unequally petiolulate, subcoriaceous, shining above, glabrous or sparsely stellate-pubescent beneath, oblong to lanceolate, the lower ones small, 8 cm. long, 1.3 cm. wide, the median ones larger, 22 cm. long, 8.5 cm. wide, the others intermediate, the apex acuminate, the base attenuate, the margins entire, sometimes lobed or remotely dentate on younger trees, the midrib and nerves distinct above, projecting beneath, the nerves 10–16 on each side, the veins reticulate, distinct above, the petiolules glabrous to subglabrous, the lower ones 0.5 cm. long, the median ones 5 cm. long, the others intermediate. Inflorescence a large terminal panicle, tomentose when young, the primary branches tomentose to subglabrous, 15–30 cm. long, the flowers in umbels singly or racemosely arranged on the branches, the peduncles puberulent to glabrescent, 2–5 cm. long, with a bracteole 5–7 mm. long at the base and one or two 2–3 mm. long in the middle, often bearing abortive buds or occasionally a flower in the axils; umbels many-flowered, 2–2.5 cm. in diameter, the pedicels puberulent, 3–5 mm. long, with small bracteoles at the base. Calyx tomentose, the margin entire to subentire. Petals 5, triangular-ovate, incurved at apex, about 3 mm. long, puberulent, often cohering into a calyptra. Stamens 5, the filaments 5 mm. long. Ovary 5-celled, the disk flat, the styles 5, connate at the base. Fruits (immature) ovoid, subglabrescent, 4 mm. long, the disk 1–1.5 mm. across, the 5 styles connate at the base into a short erect column, their tips radiating and strongly reflexed.

YUNNAN: No precise locality, *Forrest 9790* (NY); Mengtze, *Henry 11435* (AA, NY); Yuanching, *Henry 13301* (AA); Tsing-pian, *H. T. Tsai 52466* (AA); Wen-shan Hsien, *H. T. Tsai 51505* (AA), *51538A* (AA).

A species characterized by the 5 styles connate at the base, with the tips radiating and strongly reflexed, especially in the fruits. It is easily distinguished by this character from *Schefflera hypoleuca* (Kurz) Harms, which it resembles

closely in general appearance. *Forrest 9790* has the leaflets more densely pubescent than the other specimens cited.

4. **Schefflera octophylla** (Lour.) Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 38. 1894; Viguier in Lecomte, Fl. Gén. Indo-Chine **2**: 1178. *f. 139. no. 5, 6, 7.* 1923; Chung, Mem. Sci. Soc. China **1**: 186. 1924; Merr. Lingnan Sci. Jour. **5**: 139. 1927; McClure, Lingnan Univ. Sci. Bull. **3**: 30. 1931; Merr. Trans. Am. Phil. Soc. II. **24**(2): 291. 1935.

Aralia octophylla Lour. Fl. Cochinch. 187. 1790, ed. Willd. 233. 1793; DC. Prodr. **4**: 258. 1830.

Paratropia cantoniensis Hook. & Arn. Bot. Beechey Voy. 189. 1841; Walp. Rep. **2**: 433. 1843; Benth. Fl. Hongk. 136. 1861.

Agalma octophyllum Seem. Jour. Bot. **2**: 298. 1864, Revis. Heder. 24. 1868.

Heptapleurum octophyllum Benth. ex Hance, Jour. Linn. Soc. Bot. **13**: 105. 1873; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 342. 1888; Dunn & Tutch. Kew Bull. Add. Ser. **10**: 119. 1912.

A tree or shrub, with 6–8-foliolate leaves, the leaflets elliptic, acute or short-acuminate, and with large terminal panicles, the flowers in umbels, racemosely arranged on the lateral branches. Leaves generally 6–8-foliolate, long-petiolate; petioles at first finely pubescent, soon glabrous, 8–25 cm. long; leaflets unequally petiolulate, coriaceous, finely stellate-puberulent on both surfaces, soon glabrous, elliptic or ovate-elliptic, 7–17 cm. long, 3–6 cm. wide, the apex acute or short-acuminate, the base attenuate or nearly rounded, the margins entire, the lateral nerves about 8 on each side, not prominent above, slightly projecting beneath; petiolules glabrous, the lateral ones 1.5–2.5 cm. long, the median ones 3–5 cm. long, the others intermediate. Inflorescence in large terminal panicles, 25 cm. long, the flowers in racemosely arranged umbels on the primary branches, the bracts triangular, small, about 2–3 mm. long, the peduncles about 1 cm. long, with a small bracteole at base and one or two near the middle, the umbels many-flowered, 1–2 cm. in diameter, the pedicels 3–5 mm. long, with a small bracteole at the base, the flowers small, white, fragrant. Calyx pubescent, 5–6-dentate. Petals 5, fleshy, 2–3 mm. long. Stamens 5, the filaments slightly longer than the petals. Ovary 5–8-celled, the disk flat, the styles united into a very short but distinct column, the stigmas indistinct. Fruits globose, 3–4 mm. across, the disk at top 2 mm. across, the calyx-margin persistent, the style-column very short, less than 1 mm. long, the stigmas capitate.

CHEKIANG: Southern Yentang, Nan-Hoo, *H. H. Hu 185* (AA, LU).

FUKIEN: Amoy, *Henry 22714* (AA), Hinghwa District, *H. H. Chung 1004* (AA); Changchow, White Cloud Hill, *H. H. Chung 1135* (AA); Foochow, Kushan, *H. H. Chung 1289* (AA); Kushan, A Ieng, near Kushan Monastery, *Tang Siu Ging 6831* (AA); Amoy, *H. H. Chung 5275* (LU); Foochow University and vicinity, *Tang Siu Ging 6967* (LU), *13008* (LU); Kushan Monastery, *Tang Siu Ging 13105* (LU); Ing-hok, Huong-guong Nang, *Tang Siu Ging 13270* (LU); In Hok, Fung Huang Se, *L. Chen 68* (LU).

YUNNAN: Tamsui, *Henry 1735* (NY); Szemao, *Henry 12801* (AA); Che-li Hsien, *C. W. Wang 8649* (AA); Che-li Hsien, Sheau-meng-yang, *C. W. Wang 79622* (AA); Meng-him, Jenn-yeh Hsien, *C. W. Wang 79954* (AA), *80111* (AA), *80365* (AA), *80751* (AA).

KWANGSI: South of Nanning, Shih Wan Tai Shan, *R. C. Ching 8234* (AA, W); Wuchow, Tang Uk Shan, *Tang Siu Pan & Fung Hom 27 = LU19147* (LU, NY); Yung Hsien, Ta Tze Tseun, *Steward & Cheo 1086* (AA); Wuchow, *C. C. Wang 308* (LU); Chien Pien District, *S. P. Ko 55814* (AA).

KWANGTUNG: Hongkong, *Wight s. n.* (W), *101* (W), *179* (G), *287* (W); Hongkong Bot. Garden, *C. S. Sargent s. n.* (AA); Hongkong, *C. S. Sargent s. n.* (AA), *Otto Kuntze 3573* (NY), *C. Ford s. n.* (NY); Tung Wu Mt., *Levine & Groff CCC117* (AA); Canton, *C. O. Levine CCC262* (AA, G, W), *CCC1684* (AA, G, W); no precise locality, *C. O. Levine CCC3400* (AA, G, W); Tung Lu Ping, *W. Y. Chun 6100* (AA); no precise locality, *W. Y. Chun 5204* (AA); Lantau Island, Taai Ae Shann, *W. T. Tsang LU16588* (AA); Hwang Tso Kong, *Y. Tsiang 166* (AA); Ting Wu Shan, *Y. Tsiang 1555* (AA); Lokchong Hsien, route to Siekun, *Y. Tsiang 1449* (AA); Sunyi, Sick Toun, *C. W. Wang 31907* (AA); Yung-

yun City, *S. K. Lau 627* (AA, NY); Wung-Yeun District, Tsin Wen Shan, Wong Chuck I, *S. K. Lau 2262* (AA); Tung-koon District, Lin Fa Shan, *S. K. Lau 20011* (NY); Kun Dzu, Tse Kung, *C. L. Tso 21478* (NY).

HAINAN: No precise locality, *W. Y. Chun UN5903* (W); Ou Yan, *F. A. McClure 7894* (AA); Taam-chan District, Sha Po Shan, *W. T. Tsang 768 = LU16267* (AA, NY, W), *808 = LU16307* (LU, NY, W); Wai-yeung District, Kan Lung Fung, *W. T. Tsang 20057* (AA, NY); Fan Yah, *N. K. Chun & C. L. Tso 44020* (AA, NY); Pak Shik Ling, Ku Tung Village, Ching Mai Village, *C. I. Lei 221* (AA, NY, W), *357* (AA, NY, W); no precise locality, *F. C. How & N. K. Chun 70103* (AA, NY, W), *C. Wang 34558* (NY), *34608* (NY), *55127* (NY), *H. Y. Liang 63484* (AA, NY), *63683* (NY, W), *64336* (AA, NY); Chang-kiang District, Ue Lung Shan, *S. K. Lau 3216* (AA); Lekwei, *S. K. Lau 28381* (AA).

ADDITIONAL DISTRIBUTION: From Indo-China to Formosa and the Liukiu Archipelago.

The leaves of this species are sometimes very variable. The ovary is generally 5-celled, but variations between 6–8 cells are not infrequent. The styles are united into a very short but distinct column. Occasionally a few flowers are developed on the peduncles under the umbels and the umbels imperfectly formed, illustrating the transition from a racemose arrangement to an umbellate one.

5. **Schefflera Bodinieri** (Lévl.) Rehder, Jour. Arn. Arb. **11**: 166. 1930, **15**: 114. 1934.

Heptapleurum Bodinieri Lévl. Bull. Acad. Géogr. Bot. **24**: 144. 1914; Fl. Kouy-Tchéou 35. 1914.

A shrub, with 7–9-foliolate leaves, the leaflets membranaceous, linear-lanceolate, remotely serrulate, and with small terminal panicles, the flowers in umbels, racemosely arranged on the branches. Branches mealy-puberulent at first, soon glabrescent. Leaves generally 7–9-foliolate, sometimes 5–6-foliolate, long-petiolate; petioles slender, terete, glabrous, 8–15 cm. long; leaflets unequally petiolulate, membranaceous, dark green above, glaucous beneath, sparingly mealy-puberulent at first, soon glabrescent, the lower ones ovate-lanceolate to lanceolate, 4–7 cm. long, 1–1.6 cm. wide, the median ones linear-lanceolate, 10–16 cm. long, 1–2.5 cm. wide, the others intermediate, the apex long-acuminate, the base broadly cuneate to rounded, the margins remotely 1–8-dentate on each side, rarely entire, the midrib prominent above, projecting below, the lateral nerves 8–16 on each side, obsolete; petiolules glabrous, the lateral ones short, 1–2 mm. long, the median ones 1.5–5 cm. long, the others intermediate. Inflorescences in terminal panicles, 7–15 cm. long, mealy-puberulent, the flowers in racemosely arranged umbels on the primary branches, the peduncles about 1–2 cm. long, bibracteolate, the bracteoles short, often inserted below the middle of the peduncle and often with abortive buds in the axils, the umbels many-flowered, about 2 cm. in diameter, the pedicels 2–5 mm. long. Calyx puberulent, 5-dentate. Petals 5, oblong-ovate, 3–3.5 mm. long, acute, reflexed, sparsely mealy without. Stamens 5, the filaments slightly longer than the petals. Ovary 5-celled, the disk annular, thick, the styles connate into a column, 1–2 mm. long, the stigmas indistinct. Fruits red, 5-celled, globose, slightly 5-angular, 5–6 mm. across, the disk at top thick, 2.5 mm. across, the calyx-teeth persistent, the style-column 2–3 mm. long, the stigmas capitate, the endosperm slightly ruminate.

SZECHUAN: Nanchuan Hsien, *W. P. Fang 5740* (AA).

KWEICHOW: Long-ly, *J. Cavalerie 1578* (AA); District of Tsin-gay, valley of Kia-la-tchang, *J. Laborde in herb. Bodinier 2459* (SYNTYPE, merotype in AA); Kiangchow, *Y. Tsiang 7503* (NY); Ta-ho-yen, Fan Ching Shan, *Steward, Chiao, & Cheo 725* (AA, NY), *758* (AA, NY).

KWANGSI: Lin-yuin Hsien, Loh Hoh Tseun, Loa Shan-loa-ling, *Steward & Cheo 11* (AA, NY).

This species is easily distinguished from its allies by its small, narrowly linear-lanceolate, remotely serrulate, membranaceous leaflets, and its small inflorescence. It is to be noted that the endosperm is slightly ruminate.

6. **Schefflera macrophylla** (Dunn) Viguier, Ann. Sci. Nat. IX. Bot. **9:** 330. 1909; Chung, Mem. Sci. Soc. China **1:** 186. 1924.

Heptapleurum macrophyllum Dunn, Jour. Linn. Soc. Bot. **35:** 499. 1903; W. W. Smith, Notes Bot. Gard. Edinb. **17:** 297, 331. 1930.

A tree, 5–10 m. tall, with large 7-foliolate leaves, ovate-oblong, short-acuminate leaflets, and large terminal panicles, the flowers in racemosely arranged umbels, on the branches. Leaves very large, generally 7-foliolate, long-petiolate; leaflets long-petiolulate, coriaceous, glabrous above, white-tomentose beneath, ovate-oblong, 20–55 cm. long, 8–25 cm. wide, the apex short-acuminate, the base round to cordate, the margins slightly revolute, entire to obscurely serrate, the midrib projecting on both surfaces, the lateral nerves 8–12 on each side; petiolules glabrous, 5–17 cm. long. Inflorescence a large terminal panicle to 50 cm. long, densely ferruginous-tomentose; flowers in umbels, these racemosely arranged on the primary branches, the branches to 22 cm. long, with large bracts at the base 1.5 cm. long, the peduncles 2 cm. long, with triangular bracteoles at the base 0.5 cm. long, the umbels many-flowered, 1.5 cm. in diameter, the pedicels 2–3 mm. long, the flowers small. Calyx pubescent, 5-dentate. Petals 5, pubescent without, glabrous within, 2 mm. long. Stamens 5, the filaments about the same length as the petals. Ovary 5-celled, the disk flat, the styles connate into a column, about 0.5 mm. long.

YUNNAN: Szemao, *Henry 13409* (ISOTYPE, AA, W), *13409A* (NY); no precise locality, *Forrest 27186* (AA); Shang-pa Hsien, *H. T. Tsai 56628* (AA).

A species characterized by its large leaves and the large ferruginous-tomentose inflorescences.

7. **Schefflera impressa** (C. B. Clarke) Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 38. 1894; Chung, Mem. Sci. Soc. China **1:** 186. 1924.

Hedera tomentosa Ham. in D. Don, Prodr. Fl. Nepal. 187. 1825; DC. Prodr. **4:** 264. 1830; non *Schefflera tomentosa* (Seem.) Harms.

Panax tomentosum Wall. in DC. Prodr. **4:** 254. 1830.

Agalma tomentosum Seem. Jour. Bot. **2:** 298. 1864, Revis. Heder. 25. 1868.

Heptapleurum impressum C. B. Clarke in Hook. f. Fl. Brit. Ind. **2:** 728. 1879; Dunn, Jour. Linn. Soc. Bot. **39:** 454. 1911; Dunn & Tutch. Kew Bull. Add. Ser. **10:** 119. 1912.

A tree to 20 m. tall, with 7-foliolate leaves, short-petiolulate, lanceolate to oblanceolate leaflets, and large terminal panicles with the flowers in racemosely arranged umbels on the lateral branches. Leaves generally 7-foliolate, sometimes 5-foliolate, long-petiolate, the petioles slender, terete, puberulent to glabrescent, 15–50 cm. long; leaflets equally short-petiolulate, coriaceous, glabrous or rugose above, stellate-pubescent beneath, soon glabrescent to glaucous, lanceolate to oblanceolate, more or less equal, 12–20 cm. long, 3–5 cm. wide, the apex acuminate, the base broadly attenuate, the margins entire, sometime distantly lobed or serrate on young trees, the midrib and nerves projecting beneath, the nerves 8–12 on each side, the veins reticulate and impressed above; petiolules 1–2.5 cm. long, puberulent to glabrescent. Inflorescence in large terminal panicles, 30–40 cm. long, stellate-tomentose, the lower branches to 20 cm. long, the bracts 5 mm. long; flowers in umbels, racemosely arranged on the primary branches; peduncles 2.5–4 cm. long, the bracteoles triangular, 2 mm. long, the umbels many-flowered, 1.5–3 cm. in diameter, the pedicels 6–8 mm. long, with small bracteoles at base. Calyx densely pubescent, 5-dentate. Petals 5, pubescent without, 3 mm. long. Stamens 5, the filaments 4 mm. long. Ovary 5-celled, the disk flat, the styles 5, connate into a column, the stigmas indistinct. Fruit globose, 4–5 mm. across, 5-angled, 5-celled, the disk 2 mm. across, conical, gradually merging into the style-column, 1.5–2 mm. long, the stigmas subcapitate.

YUNNAN: Between Tengyueh and the Burmese border, en route to Sadon, *J. F. Rock 7411* (AA, NY, W); Shweli River drainage basin to summit of Shweli-Salween watershed

east of Tengyueh, *J. F. Rock 7632* (AA, W); Shang-pa Hsien, *H. T. Tsai 54478* (AA); Che-tse-lo, *H. T. Tsai 54121* (AA), *58363* (AA); Taron-Taru divide, Valley of Bucahwang, *T. T. Yü 20118* (AA).

ADDITIONAL DISTRIBUTION: Himalayan region.

The Chinese specimens agree well with the available Indian material except that the leaflets are generally sparsely pubescent to glabrescent and sometimes glaucous beneath. As a group, the Chinese plants may deserve varietal standing to separate them from the Indian ones. More material is needed for this decision.

8. **Schefflera producta** (Dunn) Viguier, Ann. Sci. Nat. IX. Bot. **9**: 351. 1909.

Heptapleurum productum Dunn, Jour. Linn. Soc. Bot. **35**: 499. 1903.

A shrub, 1.5–3 m. high, with 5–11-foliolate leaves, the leaflets ovate-lanceolate, long-acuminate, glabrous, and with a terminal paniculate inflorescence formed by umbels. Leaves 5–11(generally 7–9)-foliolate, long-petiolate; petioles terete, glabrous, 20 cm. long; leaflets petiolulate, chartaceous, glabrous on both surfaces, ovate-lanceolate, 8–15 cm. long, 3–5 cm. wide, the lower ones slightly smaller than the median ones, the apex long-acuminate, the base broadly acute to rounded, the margins sparsely serrate, revolute, the lateral nerves 6–10 on each side, distinct above, projecting beneath, the tertiary veins slightly impressed above; petiolules 1.5–3.5 cm. long, the median ones slightly longer than the lateral ones. Inflorescence a panicle, white- or ferruginous-tomentose to glabrescent, the flowers in umbels, racemosely arranged; umbels many-flowered, 3 cm. in diameter; peduncles 2–3.5 cm. long, tomentose. Calyx densely tomentose, the margin 5-dentate. Petals 5, 3 mm. long, slightly tomentose outside, glabrous inside. Stamens 5, the filaments 3 mm. long. Ovary 5-celled, the disk flat, the styles connate into a short column, 1.5 mm. long.

YUNNAN: Mengtze, *Henry 9530* (ISOTYPE, NY), *11382* (NY p.p.).

KWEICHOW: Langtse, *Y. Tsiang 9519* (NY).

Tsiang 9519 from Kweichow is identical with Dunn's Yunnan type except for the indumentum on the inflorescence, which is white in the former and ferruginous in the latter. See also notes under *S. hypoleuca* Harms. *S. producta* Viguier is very similar in appearance to some species of *Brassaiopsis*. Some of the ovaries are 3-celled. Apparently this species represents a link between these two closely related genera.

9. **Schefflera elata** (Ham.) Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 38. 1894; Chung, Mem. Sci. Soc. China **1**: 186. 1924.

Hedera elata Ham. in D. Don, Prodr. Fl. Nepal. 187. 1825; DC. Prodr. **4**: 264. 1830.

Agalma elatum Seem. Jour. Bot. **2**: 298. 1864, Revis. Heder. 25. 1868.

Heptapleurum elatum C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 728. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 454. 1911.

A tree 10–13 m. tall, with generally 5–7-foliolate leaves, the leaflets elliptic-oblong, glabrous, entire, long-petiolate, and with a terminal paniculate inflorescence formed by umbels. Petioles terete, glabrous, about 15 cm. long; leaflets petiolulate, more or less coriaceous, glabrous above, very slightly tomentose to glaucous beneath, elliptic-oblong, 10–18 cm. long, 5–7 cm. wide, the apex acute, the base rounded to acute, the margins entire, the lateral nerves 6–8 on each side, subconspicuous above, slightly projecting beneath, the tertiary nerves inconspicuous on both surfaces; petiolules more or less equal, 2–3.5 cm. long, glabrous. Inflorescence in terminal panicles, 30–40 cm. long, slightly tomentose to glabrescent, the lower branches usually compound, the flowers in racemosely arranged umbels, the umbels about 12–15-flowered, 2 cm. in diameter, the bracts ovate, 5 mm. long, the peduncles 1.5–2 cm. long, slightly tomentose, the pedicels 5–7 mm. long, slightly tomentose. Calyx nearly glabrous, the margin slightly 5-dentate. Petals 5, 2 mm. long, glabrous on both surfaces. Stamens 5, the filaments about

2 mm. long. Ovary 5-celled, the disk flat, the styles connate into a short column. Fruit globose, 4–5 mm. across, the style-column very short, about 1 mm. long.

YUNNAN: No precise locality, *Henry 13474* (NY); Kiukiang Valley, Taron, *T. T. Yü 19477* (AA).

ADDITIONAL DISTRIBUTION: India.

This species is very near to *S. hypoleuca* Harms, from which it may be distinguished by the smaller and narrower leaflets which are glabrous beneath, as well as by the nearly glabrous calyx and the glabrous petals.

10. **Schefflera minutistellata** Merrill in herb. sp. nov.

Frutex 1–13 m. altus. Foliis 7–17-foliolatis longe petiolatis; petiolis gracilibus teretibus glabris 15–40 cm. longis; foliolis petiolatis coriaceis, supra glabris, subtus minute stellato-tomentosis, oblongo-lanceolatis, 10–18 cm. longis, 2.5–6.5 cm. latis, inferioribus minoribus, medianis majoribus, apice acuminatis, basi rotundatis vel acutis, marginibus integris, nervis lateralibus utrinsecus 8–12, venis tertiariis inconspicuis, supra vix impressis; petiolulis 1.5–9 cm. longis, exterioribus brevioribus, medianis longioribus. Inflorescentiis terminalibus paniculatis, 30–40 cm. longis, ramulis inferioribus plus minusve compositis, floribus umbellatis, umbellis in ramis ultimis racemose dispositis, pedunculis 2–3.5 cm. longis, umbellis plurifloris 2 cm. latis; pedicellis 6 mm. longis pubescentibus, bracteis minimis ad basim fultis. Calyce stellato-pubescente 5-dentato. Petalis 5 utrinque glabris 2–3 mm. longis. Staminibus 5, filamentis 3–4 mm. longis. Ovario 5-loculari, disco plano, stylis in columnam brevem connatis, stigmatibus obscuris. Fructu globoso vel ovoideo, 3 mm. longo, 4 mm. crasso, disco crasso et lato, stylo 2 mm. longo, stigmatibus capitatis.

YUNNAN: Between Tengyueh and the Burmese border, en route to Sadon, *J. F. Rock 7278* (AA, NY, W); Chiu-pei Hsien, *H. T. Tsai 51443* (AA); Mienning, Poshan, *T. T. Yü 17960* (AA).

KWEICHOW: Chenfeng, *Y. Tsiang 4286* (NY); Tuhshan, *Y. Tsiang 6957* (NY).

KWANGTUNG: Lokchong, O-Hang, *S. P. Ko 51164* (TYPE, AA), Jan. 21, 1931; Foh-chang District, Chong Uen Shan near Kan Fung, *W. T. Tsang 20740* (AA, NY).

KWANGSI: Yeo Mar Shan, North of Hin Yen, *R. C. Ching 7123* (LU, NY); Kwei-lin District, Chi-fen Shan, Hsi-chang Village and vicinity, *W. T. Tsang 28503* (AA).

This species can be distinguished from its allies with umbellate flowers by its more or less unequal, oblong-lanceolate leaflets, which are minutely stellate-tomentose beneath.

11. **Schefflera hypoleuca** (Kurz) Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 38. 1894.

Heptapleurum hypoleucum Kurz, For. Fl. Brit. Burma **1**: 539. 1877; Dunn, Jour. Linn. Soc. Bot. **39**: 454. 1911.

A small tree about 5–10 m. tall, with generally 7-foliolate leaves, the leaflets oblong or ovate, unevenly petiolulate, generally glaucous beneath, and with a terminal paniculate inflorescence formed by umbels. Leaves long-petiolate; petioles slender, terete, glabrous, about 30 cm. long; leaflets petiolulate, coriaceous, glabrous above, loosely stellate-tomentose or glaucous beneath, ovate or oblong, 12–20 cm. long, 4–10 cm. wide, the lower ones smaller than the median ones, the apex acute, the base rounded, the margins entire to serrate or lobed, the lateral nerves 8–12 on each side, distinct above, projecting beneath, the tertiary nerves subconspicuous above; petiolules 1–8 cm. long, the median ones long, the outer ones short. Inflorescence in terminal large panicles, 30–40 cm. long, the lower branches often compound, stellate-tomentose to glabrescent, the flowers in racemosely arranged umbels, the umbels many-flowered, 3–3.5 cm. in diameter; peduncles 2–5 cm. long, stellate-tomentose, the bracteoles triangular, 2–3 mm. long; pedicels slender, tomentose, 1–1.4 cm. long. Calyx densely stellate-tomentose,

the margin 5-dentate. Petals 5, 2–3 mm. long, slightly stellate-tomentose outside, glabrous inside. Stamens 5, the filaments 3 mm. long. Ovary 5-celled, the disk flat, the styles connate into a short column, the stigmas indistinct.

YUNNAN: Mengtze, *Henry 9564* (NY, W), *11382* (NY, p.p., W), *11840* (W).
ADDITIONAL DISTRIBUTION: India and Burma.

A photograph of *Henry 9564A* in the Kew Herbarium (by R. C. Ching, in NY) is labeled *Heptapleurum hypoleucum* Kurz var. *hypochlorum* Dunn. A sterile specimen bearing the same number in the herbarium of the Arnold Arboretum consists of the leaves of *Brassaiopsis glomerulata* Regel.

12. **Schefflera hainanensis** Merr. & Chun, Sunyatsenia **2**: 295. *t. 67*. 1935.

A subglabrous tree about 10 m. tall, with 16-foliolate leaves, the leaflets long-petiolulate, ovate, acuminate, and with terminal paniculate inflorescence, the flowers racemosely arranged on the branches. Leaves long-petiolate; petioles terete, glabrous, up to 40 cm. long; leaflets long-petiolulate, chartaceous to subcoriaceous, glabrous, olive-green above, glaucous beneath, variable in shape, mostly ovate to oblong-ovate, 8–15 cm. long, 2–8 cm. wide, the apex acuminate, the base broad-cuneate, the margins entire, the lateral nerves 7–10 on each side, distinct on both surfaces, the veins reticulate and prominent especially above; petiolules 2–7 cm. long, slightly furfuraceous when young. Inflorescence in terminal panicles about 30 cm. long, densely pubescent especially when young, the flowers racemosely arranged on the primary branches, the branches to 9 cm. long, the bracts triangular, 0.5–1 cm. long; pedicels 2–3 mm. long. Calyx pubescent, indistinctly 5-dentate. Petals 5, thin, glabrous on both surfaces, 2 mm. long. Stamens 5, the filaments slightly longer than the petals. Ovary 5-celled, the disk flat, the 5 styles connate into a short column, 0.5 mm. long, the stigmas indistinct. Fruit ovoid, 5-angular, 5-celled, glabrous, 3 mm. long, the style-column 1 mm. long, the stigmas capitate.

YUNNAN: Ping-pien Hsien, *H. T. Tsai 62779* (AA) (a juvenile specimen).
HAINAN: Fan Yah, *N. K. Chun & C. L. Tso 4427* (HOLOTYPE, NY, isotype, AA, W).

A species characterized by its long-petiolate, multifoliolate leaves and the prominently acuminate leaflets, which are glabrous on both surfaces and glaucous beneath.

13. **Schefflera Metcalfiana** Merr. in herb. sp. nov. Fig. 2.

Arbuscula vel frutex, 3–5 m. altus, ramulis novellis stellato-pubescentibus. Foliis plurifoliolatis, foliolis 12–15, interdum paucioribus, longe petiolatis; petiolis gracilibus teretibus glabris 12–13 cm. longis; foliolis longe petiolulatis chartaceis glabris, supra nitentibus, subtus glaucescentibus, ovatis vel ovato-ellipticis, 4–10 cm. longis, 2–4.5 cm. latis, apice acuminatis, basi late cuneatis, margine integris vel remote denticulatis, revolutis, costa supra subprominente, subtus prominente, nervis lateralibus utrinsecus 5–7, supra paulo impressis, subtus prominentibus, venis reticulatis supra subimpressis; petiolulis glabris 1–5 cm. longis. Inflorescentiis in paniculis magnis terminalibus, minute stellato-puberulis, ad 45 cm. longis, floribus racemosis compacte secus ramulos laterales dispositis, ramulis 5–6 cm. longis, bracteis triangularibus acutis 3 mm. longis; floribus parvis albis, pedicellis 3–4 mm. longis. Calyce dense pubescente, 5-dentato. Petalis 5 tenuibus utrinque glabris 2 mm. longis. Staminibus 5, filamentis quam petalis sublongioribus vel petala aequantibus. Ovario 5-loculari, disco plano, stylis in columnam brevem connatis 0.5 mm. longis. Fructu ignoto.

KWANGSI: South of Nanning, Shih Wan Tai Shan, *R. C. Ching 8350* (AA, NY, G); Shang-sze District, Shih Wan Tai Shan, Tang Lung Village, *W. T. Tsang 24465* (TYPE, AA, NY), Oct. 1–16, 1934, *24428* (AA, NY), *24518* (AA).

This species resembles *Schefflera hainanensis* Merr. & Chun in the many and slender petiolulate leaflets and the racemosely arranged flowers. It may be read-

Fig. 2. *Schefflera Metcalfiana; 1.* leaf, × ½; *2.* portion of inflorescence, × ½; *3.* flower, × 3.

ily distinguished from the latter by its shrubby habit, the much smaller size of the leaflets, the shorter petioles, and the impressed veins. It is named in honor of Prof. F. P. Metcalf of Lingnan University, China.

14. **Schefflera diversifoliolata** sp. nov. Fig. 3.

Arbor 7 m. alta. Foliis 7-foliolatis petiolatis; petiolis teretibus glabris 22 cm. vel ultra longis; foliolis petiolulatis chartaceis, supra glabris, subtus minutissime stellato-tomentosis vel glabris, glaucis, oblongo-ellipticis, magnitudine valde variabilis, infimis minimis, 7 × 3 cm., medianis magnis, 17 × 10 cm., ceteris magnitudine intermediis, apice acuminatis, basi rotundatis, margine integris, nervis lateralibus utrinque 8–15, valde obliquis, supra subconspicuis, subtus prominentibus, venis tertiariis supra inconspicuis, subtus subconspicuis, petiolulis valde inaequalibus, infimis 0.5–2 cm. longis, medianis 6–6.5 cm. longis, ceteris longitudine intermediis, glabris. Floribus ignotis. Inflorescentiis paniculatis, fructigeris glabrescentibus, ramulis lateralibus 20 cm. longis, fructibus racemose dispositis, pedicellis 3 mm. longis, bracteolis triangularibus 1–2 mm. longis. Fructu globoso 4 mm. longo 5-sulcato, disco apice 2 mm. lato, stylo 1.5 mm. longo, stigmatibus perspicuis capitatis.

YUNNAN: Tsing-pian, *H. T. Tsai 52450* (TYPE, AA), Dec. 21, 1932.

A species characterized by the very unequal leaflets, minutely stellate-tomentose beneath, with very oblique lateral nerves, and the petiolules very variable in length. It resembles *Schefflera minutistellata* Merr. in general appearance and

in the minute stellate tomentum of the leaves, but may be distinguished from the latter by the diverse leaflets and the variable petiolules, and more especially by its racemosely instead of umbellately arranged flowers.

Fig. 3. *Schefflera diversifoliolata; 1.* leaf, × ⅓; *2.* portion of infructescence, × ⅓; *3.* fruit, × 4; *4.* diagrammatic cross-section of fruit, × 4.

15. **Schefflera Delavayi** (Franch.) Harms, Bot. Jahrb. **29:** 486. 1900; Harms and Rehder in Sargent, Pl. Wils. **2:** 555. 1916; Chung, Mem. Sci. Soc. China **1:** 186. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **17:** 109, 172, 180, 357, 382. 1929–30; Metcalf, Jour. Arn. Arb. **12:** 271. 1931; Hand.-Maz. Symb. Sin. **7:** 690. 1933; Rehder, Jour. Arn. Arb. **15:** 113. 1934.

Heptapleurum Delavayi Franch. Jour. de Bot. **10:** 307. 1896, Pl. Sin. Ecl. Prim. 27. 1897; Lévl. Cat. Pl. Yun-Nan 11. 1915.

Schefflera megalobotrya Harms ex Diels, Bot. Jahrb. **29:** 486. 1900; Chung, Mem. Sci. Soc. China **1:** 186. 1924.

Heptapleurum Dunnianum Lévl. Rep. Sp. Nov. **11:** 295. 1912, Fl. Kouy-Tchéou 35. 1914.

A tree, 5–8 m. in height, with generally 4–7-foliolate leaves and acuminate ovate-lanceolate leaflets, these densely white-tomentose beneath and subentire to distantly dentate or lobed; flowers sessile, densely arranged on the many lateral tomentose branches of the terminal inflorescence. Petioles terete, tomentose, soon glabrescent, 12–25 cm. long or more; leaflets petiolulate, coriaceous, glabrous and dark green above, densely white-tomentose beneath, unequal, ovate-lanceolate, 12–24 cm. long, 5–12 cm. wide, the apex acuminate, the base obtuse, the margins subentire to distantly and irregularly dentate or lobed, the lateral nerves 7–13 on each side; petiolules 1–9 cm. long, tomentose. Inflorescence terminal, formed by spike-like densely tomentose branches, the axis soon glabrescent, 30–40 cm. long, the branches 10–15 cm. long, crowded on the axis, the bracts short, ovate, acuminate, 5 mm. long; flowers sessile, crowded on the branches, the bracteoles short, triangular. Calyx tomentose, distinctly 5-dentate, the teeth subhyaline, triangular, acute to mucronate. Petals 5, thin, glabrous on both surfaces, 2 mm. long. Stamens 5, the filaments slightly longer than the petals. Ovary 5-celled, the disk flat, the styles united into a single column, the stigmas indistinct. Fruits numerous, globose, glabrescent, 4–5 mm. across, short-pedicellate, the pedicels about 1 mm. long, the disk 3 mm. across, the style-column 2 mm. long, the stigmas capitate.

WESTERN CHINA: No precise locality, *Wilson 3691* (AA).

HUNAN: Wukang, Mt. Yun-shan, *Handel-Mazzetti 2542* (AA); Chang-ning Hsien, Yang Shan, *C. S. Fan & Y. Y. Li 286* (AA); Sinning Hsien, Ma-ling-tung, *Fan & Li 681* (AA).

HUPEH: Enshih Hsien, *H. C. Chow 1956* (AA, NY).

SZECHUAN: Kuan Hsien, *Wilson 4559* (AA); Omei Hsien, Mt. Omei, *W. P. Fang 3241* (AA); Nanchuan Hsien, *W. P. Fang 5713* (AA, NY); Lo-shan Hsien, *F. P. Wang 23645* (AA); Kuan-hsien, *Y. S. Liu 1864* (AA).

YUNNAN: No precise locality, *Forrest 9308* (AA), *11775* (AA), *C. Schneider 4054* (G); Mengtze, *Henry 9214* (AA, NY), *9214B* (AA, NY, W); between Tengyueh and Lungling, *J. F. Rock 7096* (AA, NY, W); Shweli River drainage basin to summit of Shweli-Salween watershed east of Tengyueh, *J. F. Rock 7586* (AA); Wan-shan Hsien, *H. T. Tsai 51489* (AA); Shangpa Hsien, *H. T. Tsai 54526* (AA), *54969* (AA); Dzung-duei, Champu-tong, *C. W. Wang 66826* (AA); Mienning, Montungshan, *T. T. Yü 17809* (AA); Northwestern Likiang, Mu-kwa-ze on the Yangtze, *R. C. Ching 21563* (AA); South of Chungtien, Chiao-tou on the Yangtze, *K. M. Feng 3086* (AA).

KWEICHOW: Sanhoa, *Y. Tsiang 6455* (NY); Fan Ching Shan, *Steward, Chiao and Cheo 776* (AA, NY, W).

A species characterized by the thick coriaceous leaflets, which are densely tomentose beneath, and the sessile flowers crowded on the racemosely arranged branches of the inflorescence. The leaflets are very variable in size and form, and are not infrequently distinctly lobed and dentate.

15a. **Schefflera Delavayi** var. **ochrascens** Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **61**: 120. 1924, Symb. Sin. **7**: 691. 1933; Metcalf, Jour. Arn. Arb. **12**: 271. 1931.

Schefflera discolor Merr. Lingnan Sci. Jour. **7**: 318. 1929.

Differs from the typical form in having brown tomentum.

KIANGSI: Lungnan District, Oo Chi Shan, near Lam Uk Village, *S. K. Lau 4847* (AA, W).

KWANGTUNG: Cha Uen Shan, Hoh Pa Tsz, *F. A. McClure LU13773* (isotype of *S. discolor* Merr., AA, LU, NY); Bei Shan, *W. Y. Chun 5672* (AA); Lochang Hsien, Hwan-kun, near Jui-feng, *Y. Tsiang 1335* (AA); Lochang Hsien, Chong Uen Shan, near Kau Fung, *W. T. Tsang 20619* (AA), *20699* (NY, W).

YUNNAN: North of Yunnanfu near Schin Lung, *C. Schneider 314* (AA); inter vicos Dsaodjidjing et Hwahung ad or. fluminis Dsolin-ho, *Handel-Mazzetti 4994* (ISOTYPE, AA), Sept. 8, 1914.

16. **Schefflera Wardii** Marquand & Shaw, Jour. Linn. Soc. Bot. **48**: 186. 1929.

A shrub 2–3 m. tall, with large 3–5-foliolate leaves, the leaflets ovate-oblong, remotely serrate and tomentose beneath, and with a large tomentose panicle, the flowers racemosely arranged on the lateral branches. Leaves long-petiolate; petioles terete, tomentose to glabrescent, 50 cm. long; leaflets coriaceous, glabrous above, densely stellate-tomentose beneath (tomentum light brown), ovate-oblong, 20–35 cm. long, 10–15 cm. wide, the apex broadly acuminate, the base rounded, the margins remotely serrate toward the upper part, the lateral nerves 10–14 on each side, the nerves and tertiary veins impressed above, projecting beneath; petiolules 3–17 cm. long, tomentose to glabrescent. Inflorescence a large panicle, densely white-tomentose, the flowers small, racemosely arranged on the lateral branches, the branches to 18 cm. long, tomentose, the bracts ovate-oblong, acute, 1.3 cm. long; pedicels 3 mm. long, slender, tomentose, the bracteoles triangular, 2 mm. or less long. Calyx densely tomentose, distinctly 5-dentate. Petals 5, densely tomentose without, glabrous within, 1.5–2 mm. long. Stamens 5, the filaments shorter than the petals. Ovary 5-celled, the disk flat, the styles connate into a column. Fruits unknown.

YUNNAN: Salwin-Kiukiang Divide, Muchielung, *T. T. Yü 21034* (AA).
ADDITIONAL DISTRIBUTION: Southeastern Tibet.

A very distinct species, related to *S. Delavayi* (Franch.) Harms in the dense tomentum on the lower surface of the leaves and on the inflorescence, but differing by the serrate leaflets, with the veins impressed above, the pedicellate flowers, and the densely tomentose petals.

17. **Schefflera shweliensis** W. W. Smith, Notes Bot. Gard. Edinb. **10**: 65. 1917, **17**: 173, 283. 1930.

A shrub 3–10 m. tall, with 7–11-foliolate leaves, oblanceolate long-acuminate leaflets, and large terminal panicles, with the flowers racemosely arranged on the branches. Leaves 7–11-foliolate, sometimes fewer, petiolate; petioles terete, glabrous, to 24 cm. long; leaflets very short-petiolulate, coriaceous, glabrous, dark green above, pale beneath, narrowly oblanceolate, to 15 cm. long and 4 cm. wide, the apex long-acuminate, the base narrowly cuneate, the margins entire, the lateral nerves 7–9 on both sides, hardly conspicuous, the tertiary veins obscure; petiolules glabrous, scarcely over 1 cm. long. Inflorescence terminal, about 20–40 cm. long, paniculate at the base, racemose at the apex, white-tomentose at first, soon glabrescent, the bracts triangular, to 5 mm. long; pedicels 5 mm. long, tomentose, the bracteoles small, triangular. Calyx tomentose to glabrescent, 5-dentate, the teeth acute. Petals 5, glabrous on both surfaces, 2 mm. long. Stamens 5, the filaments about the same length as the petals. Ovary 5-celled, the disk flat, the styles united into a column, the stigmas capitate. Fruit globose, 5-celled, about 5 mm. across, indistinctly 5-angular, the disk at the top 2 mm. across, the style-column 1.5 mm. long, the stigmas capitate.

YUNNAN: No precise locality, *Forrest 11814* (NY); West of the Mekong, en route from Pingpo to Youngchang and Tengyueh, Salween watershed, *J. F. Rock 7018* (AA, W); Shweli River drainage basin to summit of Shweli-Salween watershed east of Tengyueh, *J. F. Rock 7639* (AA, W); Lung-ling Hsien, *H. T. Tsai 54518* (AA); Chenkang Hsien, *C. W. Wang 72319* (AA); Tengtehwang, *T. T. Yü 20000* (AA); Mien-ning, Poshan, *T. T. Yü 17940* (AA); Taron-Taru Divide, Tehgai, *T. T. Yü 20980* (AA); no precise locality, *M. K. Li 2189* (AA).

A species characterized by its coriaceous, oblanceolate, long-acuminate, very short-petiolulate leaflets.

18. **Schefflera multinervia** sp. nov.

Arbor circa 8 m. alta. Foliis 5-foliolatis petiolatis; petiolis teretibus glabris 8–12 cm. vel ultra longis; foliolis petiolulatis coriaceis glabris, supra nitidis, subtus glaucis, oblongo-lanceolatis, subaequalibus, circa 15–17 cm. longis, 5–5.5

cm. latis, apice acutis, basi late cuneatis, margine integris, nervis lateralibus utrinsecus 16–22 obliquis, utrinque perspicuis, venis tertiariis utrinque obscuris; petiolulis glabris subaequalibus, 1–2 cm. longis. Inflorescentiis magnis confertis paniculatis, paniculis 25 cm. vel ultra longis, ferrugineo-pubescentibus vel glabrescentibus, ramulis inferioribus compositis ad 20 cm. vel ultra longis, bracteis triangularibus minimis 0.5 mm. longis. Calyce sparse puberulo vel glabro, 5-dentato. Petalis 5, in specimine typico nigris, fide collectoris caeruleis, extus parcissime pubescentibus vel pro more glabris, 2 mm. longis. Staminibus 5. Ovario 5-loculari, disco plano, stylis in columnam connatis. Fructu ignoto.

YUNNAN: Che-tse-lo, *H. T. Tsai 58437* (TYPE, AA), Sept. 9, 1934.

A species related to *Schefflera dumicola* W. W. Smith and *S. Hoi* (Dunn) Viguier, from both of which it may be distinguished by the large number of obliquely and compactly arranged lateral veins of the leaflets.

19. **Schefflera dumicola** W. W. Smith, Notes Bot. Gard. Edinb. **12:** 221. 1920, **14:** 328, 368, 370. 1924, **17:** 178. 1930; Hand-Maz. Symb. Sin. **7:** 691. 1933.

Schefflera stenomera Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **61:** 119. 1924.

A shrub 4–6 m. tall, with 5–9-foliolate leaves, the leaflets oblong, acuminate, and with paniculate inflorescences, the flowers racemosely arranged on the branches, the lower branches mostly compound. Petioles terete, slender, glabrous, 15–40 cm. long; leaflets chartaceous, glabrous, dark green above, glaucous beneath, narrow-oblong to lanceolate, 15–24 cm. long, 4–5 cm. wide, the apex acuminate, the base cuneate, the margins entire, the lateral nerves 12–20 on each side, not prominent; petiolules 1.5–4.5 cm. long. Inflorescence a panicle about 40 cm. long, the flowers racemosely arranged on the branches, the lower branches mostly compound, the branches stellate-tomentose to glabrescent, the bracts small, triangular, to 5 mm. long, the pedicels 4 mm. long, tomentose. Calyx glabrous to sparsely tomentose, inconspicuously 5-dentate. Petals 5, glabrous on both surfaces, 2 mm. long, reflexed. Stamens 5, the filaments about the same length as the petals. Ovary 5-celled, the disk flat, the styles united into a column, the stigmas slightly capitate. Fruit globose, 4–5 mm. across, the disk 2 mm. across, the style-column 2 mm. long, the stigmas capitate.

SZECHUAN: Molien, *C. Schneider 1417* (AA) (sterile).

SIKANG: No precise locality, *C. W. Wang 66184* (AA).

YUNNAN: No precise locality, *Forrest s. n.* (NY); Chien-chuan-Mekong divide, *Forrest 22328* (AA, W); Lan-ping Hsien, *H. T. Tsai 54075* (AA); Wei-si Hsien, *C. W. Wang 66718* (AA); Salween Valley, Banhanlo, *T. T. Yü 23116* (AA); Northwestern Likiang, Tsze-kou on the Yangtze, *R. C. Ching 21439* (AA); south of Chungtien, Chiao-tou on the Yangtze River bank, *K. M. Feng 3111* (AA).

This species can be distinguished from its allies especially by its narrowly oblong to lanceolate leaflets, which are usually 4–5 times as long as broad. The reduction of *Schefflera stenomera* Hand.-Maz. was made by Handel-Mazzetti.

20. **Schefflera Hoi** (Dunn) Viguier, Ann. Sci. Nat. IX. Bot. **9:** 333. 1909.

Heptapleurum Hoi Dunn, Jour. Linn. Soc. Bot. **35:** 498. 1903.

Schefflera salweenensis W. W. Smith, Notes Bot. Gard. Edinb. **10:** 64. 1917, **14:** 208. 1924, syn. nov.

A small tree, 5–12 m. in height, with 3–7-foliolate leaves, the leaflets oblong to oblanceolate, and with large terminal panicles, the flowers racemosely arranged on the lateral branches, the lower ones sometimes compound. Leaves petiolate; petioles terete, glabrous, 10–30 cm. long; leaflets subcoriaceous, petiolulate, glabrous above, glaucous beneath, oblong to oblanceolate, 5–18 cm. long, 2.5–7 cm. wide, the apex acute to acuminate, the base rounded to cuneate, the margins entire, sometimes revolute, the lateral nerves 8–12 on each side, manifest above, projecting beneath; petiolules glabrous, 1–5 cm. long. Inflorescence a large ter-

minal panicle, 40–50 cm. long, ferruginous-tomentose to glabrescent, the flowers racemosely arranged on the lateral branches, the branches to 15 cm. long, the lower ones sometimes compound, ferruginous-tomentose, the bracts triangular, to 5 mm. long, the pedicels 2–3 mm. long, ferruginous-tomentose, the bracteoles small, pointed, less than 1 mm. long. Calyx sparsely ferruginous-tomentose to white-tomentose, inconspicuously 5-dentate. Petals 5, glabrous on both surfaces, 1.5–2 mm. long. Stamens 5, the filaments about the same length as the petals. Ovary 5-celled, the disk flat, the styles connate into a column, the stigmas indistinct. Fruit globose, glabrous, 4–5 mm. across, inconspicuously 5-angular, the disk 2 mm. across, the style-column 1.5 mm. long, the stigmas capitate, distinct.

YUNNAN: South of Red River, *Henry 9723* (ISOTYPE, NY); Mengtze, *Henry 13462* (AA, NY); Mount Kenyichunpo and region of Champutong, Salween-Irrawadi watershed, *J. F. Rock 11632* (AA, W); Shang-pa Hsien, *H. T. Tsai 54378* (AA), *54451* (AA), *54948* (AA), *56550* (AA), *59033* (AA); Ping-pien Hsien, *H. T. Tsai 61693* (AA); We-si Hsien, *H. T. Tsai 59589* (AA); Champutung, Chi-na-tung, *C. W. Wang 66603* (AA); Champutung, Shi-gi-tung, *C. W. Wang 67162* (AA); Kinkiang Valley, East of Monting, *T. T. Yü 20203* (AA); South of Chungtien, Wo-tso on the Yangtze River bank, *K. M. Feng 3279* (AA).

The leaves of this species are not constant in shape, with variations in the base and apex as indicated in the description above. I consider that *S. salweenensis* W. W. Smith is merely a form with oblanceolate leaflets.

20a. **Schefflera Hoi** var. **macrophylla** var. nov.

A typo foliis majoribus recedit.

Differs from the species in the larger size of the leaves. Leaves 5-foliolate; petioles terete, glabrous, 55 cm. long; leaflets oblanceolate, 30 cm. long, 10 cm. wide, the apex short-acuminate, the base attenuate, the margins entire, the lateral nerves 12–20 on each side.

YUNNAN: Der-la, Cham-pu-tung, *C. W. Wang 66751* (TYPE, AA), Oct. 1935.

Fig. 4. *Schefflera glomerulata;* *1.* leaf, × ⅓; *2.* portion of inflorescence, × ⅓; *3.* portion of infructescence, × ⅓; *4.* longitudinal section of flower, × 6; *5.* fruit, × 4.

21. **Schefflera glomerulata** sp. nov. Fig. 4.

Arbor parva 6–7 m. alta. Foliis 3–5-foliolatis, petiolatis; foliolis petiolulatis coriaceis glabris, supra nitidis, subtus pallidis, obovato-ellipticis, 8–15 cm. longis, 3–7 cm. latis, apice obtusis vel acutis, basi cuneatis, margine integris revolutis, nervis lateralibus utrinsecus 8, nervis atque venis tertiariis prominentibus, utrinque perspicuis; petiolulis 1.5–5 cm. longis glabris. Inflorescentiis terminalibus paniculatis, 15–20 cm. longis, tomentosis vel glabrescentibus, bracteis caducis, floribus parvis sessilibus ad 5 in glomerulo quove, pedunculis tomentosis fultis 3 mm. longis, bracteolis caducis. Calyce glabro, margine integro vel subintegro. Petalis 5 tenuibus, utrinque glabris, 1.5 mm. longis. Staminibus 5, filamentis petalorum longitudinem aequantibus. Ovario 5-loculari, disco subelevato, stigmatibus 5 sessilibus. Fructu elongato ovoideo, 5 mm. longo, 3 mm. crasso, manifeste pentagono, sessili vel subsessili, pedicellis circa 1 mm. longis fultis, disco conico acutato pentagono, ⅓ longitudinis fructus aequante.

YUNNAN: No precise locality, *H. T. Tsai 60037A* (TYPE, AA); Ping-pien Hsien, *H. T. Tsai 55347* (AA), *60278* (AA), *60342* (AA) (fruit).

KWEICHOW: Do-wan, Chenfeng, *S. W. Teng 90830* (AA).

KWANGSI: Bako Shan, western Poseh, *R. C. Ching 7463* (LU, NY).

This species is characterized by its sessile glomerulate flowers, short peduncles, and the sessile or subsessile, elongated and pointed fruits. It is apparently close to *Schefflera pauciflora* Viguier, an Indo-Chinese species, differing mainly in the longer peduncles in fruit.

22. **Schefflera tenuis** sp. nov.

Frutex ad 3 m. altus. Foliis 3–5-foliolatis brevipetiolatis; petiolis teretibus glabris 3–6.5 cm. longis; foliolis chartaceis glabris, obovato-ellipticis vel ovato-lanceolatis, 6–10 cm. longis, 1.5–3 cm. latis, pro more ultra medium latioribus, apice longe acuminatis, basi cuneatis, margine integris, nervis lateralibus utrinsecus 5, nervis atque venis tertiariis prominentibus utrinque manifestis; petiolulis glabris 0.5–2 cm. longis. Floribus ignotis. Inflorescentiis fructigeris corymboso-paniculatis, ramulis circa 5, 8–10 cm. longis, gracilibus, subtomentosis, bracteis caducis, fructibus in umbella quave 2–5, pedunculis teretibus 1.5–2 cm. longis; pedicellis gracilibus glabris circa 8 mm. longis. Fructu globoso glabro, manifeste glandulari-punctato, exacte pentagono, 4 mm. crasso, disco minimo plus minusve plano, ⅕ vel ⅙ longitudinis fructus aequante.

YUNNAN: Kuikiang Valley, Taron, *T. T. Yü 19475* (TYPE, AA), July 27, 1938.

A species characterized by the delicate and slender corymbose-paniculate inflorescence and the very small almost indistinct disk on the fruit. The leaflets resemble those of *Schefflera kwangsiensis* Merr. but differ in being generally broader above the middle and longer acuminate.

23. **Schefflera yunnanensis** sp. nov.

Schefflera elliptica sensu Hand.-Maz. Symb. Sin. 7: 691. 1933, *pro parte,* non Harms.

Frutex scandens, 3–10 m. longus, epiphyticus. Foliis 5-foliolatis breviter petiolatis; petiolis teretibus glabris 5–6 cm. longis; foliolis coriaceis, supra glabris, subtus glaucis, obovato-oblongis vel ovatis, 5.5 cm. longis, 2.5–3 cm. latis, apice acuminatis, basi late cuneatis vel rotundatis, margine integris, nervis lateralibus utrinsecus 5–6, nervis atque venis tertiariis utrinque prominentibus; petiolulis glabris inaequalibus, infimis brevissimis, 2–3 cm. longis, medianis 1.5 cm. longis, intermediis. Floribus ignotis. Inflorescentiis corymboso-paniculatis, ramulis 3–4, fructigeris ad 8 cm. longis, sparse tomentosis, fructibus umbellatis 2–7, umbellis racemose secus ramulos dispositis, pedunculis subtomentosis 7 mm. longis; pedicellis parce tomentosis circa 7 mm. longis. Fructu ovoideo pentagono glandulari-punctato, 4 mm. longo, 2.5 mm. magno, disco conico, ⅓ longitudinis fructus aequante, stigmatibus sessilibus.

YUNNAN: No precise locality, *Forrest 14881* (NY); Tsarong, Salwin-Kiukiang Divide, Northwest of Si-chi-to, *Forrest 21624* (TYPE, AA, isotype, W [as 21642]); inter vicos Tji-ontson et Pipito ad fluvium Lu-djang (Salween) infra Tschemutong, *Handel-Mazzetti 9833* (AA).

A species very near *Schefflera tenuis* Li and *S. kwangsiensis* Merr., differing from the former in the stouter and shorter peduncles and pedicels, the less acuminate leaflets, and the larger disk of the fruit, and from the latter in its epiphytic habit, obovate leaflets, short petioles, unequal petiolules, and smaller fruits.

24. **Schefflera arboricola** Hayata, Ic. Pl. Formos. **6**: 23, *in syn.* 1916; Merr. Lingnan Sci. Jour. **5**: 139. 1927.

Heptapleurum arboricolum Hayata, Ic. Pl. Formos. **6**: 23. *t. 4.* 1916.

A shrub, sometimes scandent, about 3–4 m. tall, with 7–9-foliolate leaves, the leaflets glabrous, ovate-oblong, obtuse to acute, sometimes emarginate, the flowers in umbels, racemosely arranged on the lateral branches of a terminal panicle. Leaves petiolate; petioles slender, terete, glabrous, 12–15 cm. long; leaflets petiolulate, coriaceous, glabrous, shining above, pale green beneath, obovate-oblong, about 9 cm. long and 4 cm. wide, the apex obtuse to acute, sometimes emarginate, the base obtuse, the margins entire, the lateral nerves 5 or 6 on each side, the nerves and tertiary veins more or less projecting and distinct on both surfaces; petiolules glabrous, 2–4 cm. long. Inflorescence a terminal panicle, slightly tomentose to glabrescent, about 20 cm. long, the flowers in umbels, these racemosely arranged on the lateral branches; bracts present in bud, large, ovate, to 1.5 cm. long, densely tomentose, soon caducous; peduncles short, 5 mm. long, with caducous bracteoles; umbels 5–10-flowered, 0.7–1 cm. in diameter, the pedicels 5–8 mm. long. Calyx glabrous, the margin entire to obscurely dentate. Petals 5, glabrous on both surfaces, 2.5 mm. long. Stamens 5, the filaments about as long as the petals. Ovary 5-celled, the disk slightly elevated, the stigmas 5, sessile. Fruits ovoid, glandular-punctate when young, 5 mm. long, 4 mm. wide, distinctly 5-angular, the disk conical, about the length of the fruit.

HAINAN: Near Shui-mun, *F. A. McClure 9596A* (AA, NY), *9596B* (NY); Tan-chow District, Mei Yuen Tsuen, *W. T. Tsang 795 = LU16294* (AA, NY, W); Ngai District, Nan Shan Ling, *S. K. Lau 350* (AA, W); Ching Mai District, Pak Shik Ling, Ku Tung Village, *C. I. Lei 187* (AA, NY); Yaichow, *H. Y. Liang 63057* (NY), *63435* (AA); no precise locality, *C. Wang 34518* (AA, NY, W), *34622* (NY), *55038* (AA, NY); Liamin, *J. L. Gressitt 1182* (AA); Poting, *F. C. How 72765* (AA), *73229* (AA), *73535* (AA).

ADDITIONAL DISTRIBUTION: Formosa.

A species closely related to *Schefflera venulosa* (Wight & Arn.) Harms, from which it can be distinguished by the 7–9-foliolate leaves, the generally obovate-oblong leaflets, the shorter peduncles and longer pedicels, and the smaller disk of the fruits.

25. **Schefflera kwangsiensis** Merrill in herb. sp. nov.

Frutex 2 m. altus. Foliis 5–7-foliolatis petiolatis; petiolis gracilibus teretibus glabris, 6–12 cm. longis; foliolis coriaceis glabris petiolulatis, oblongo-lanceolatis, plus minusve inter se aequalibus, 5–12 cm. longis, 2–4 cm. latis, apice acuminatis, basi cuneatis, margine integris revolutis, venis lateralibus utrinsecus ad 5 adscendentibus, nervis venisque tertiariis manifestis utrinque prominentibus; petiolulis subaequalibus glabris gracilibus 2.5 cm. longis. Inflorescentiis terminalibus parvis paniculatis, circa 12 cm. longis, tomentellis vel glabrescentibus, plus minusve corymbosis, ramulis 2–3 circa 7 cm. longis, bracteis caducis, floribus umbellatis racemose dispositis, pedunculis 1–1.5 cm. longis subtomentosis, bracteolis caducis, umbellis circiter 8-floris 1 cm. latis; pedicellis 5 mm. longis tomentellis. Calyce brevi et lato, glabro vel sparse tomentoso, 1 mm. longo. Petalis 5 utrinque glabris, circa 2 mm. longis. Staminibus 5, filamentis 3.5 mm. longis. Ovario

5-loculari, disco subelevato, stigmatibus 5 sessilibus. Fructibus ovoideis glabris, circa 7 mm. longis et 5 mm. crassis, perspicue pentagonis, disco conico 5-mero, ⅓ longitudinis fructus aequante, stigmatibus sessilibus.

KWANGSI: Sui-luk District, southwest of Nanning, Mountains surrounding Pa Lan Village, *W. T. Tsang 21788* (TYPE, AA), Feb. 21–30, 1933; Shang-sze District, Shih Wan Tai Shan, near Ping Hoh Village, *W. T. Tsang 22088* (AA) (fruit); Shang-sze District, Shih Wan Tai Shan, near Iu Shan Village, *W. T. Tsang 22177* (AA) (fruit).

KWANGTUNG: *McClure Y124* = *LU18592* (NY), cultivated in Lingnan University Garden.

A species allied to *Schefflera venulosa* (Wight & Arn.) Harms and *S. arboricola* Hay. It differs from both in being a lower and more slender shrub with acuminate leaflets. *McClure Y124* is from a cultivated specimen, its origin unknown. It has narrower leaflets, but probably belongs here.

26. **Schefflera fukienensis** Merr. Sunyatsenia **3**: 255. 1937.

A scandent shrub with 3-foliolate leaves, the leaflets elliptic, and with terminal panicles, the flowers in umbels, racemosely arranged on the branches. Leaves long-petiolate; petioles glabrous, terete, 12–14 cm. long; leaflets petiolulate, subcoriaceous, glabrous on both surfaces, elliptic, 7–9 cm. long, 4.5–5.5 cm. wide, the apex short-acute, the base broadly acute to rounded, the margins entire, slightly revolute, the lateral nerves about 5 on each side, the nerves and tertiary veins distinct on both surfaces; petiolules uneven, the lateral ones 10–12 mm. long, the median ones 4 cm. long. Inflorescence in terminal, loose panicles, about 15 cm. long, the branches oblique, the lower ones to 8 cm. long, the flowers in umbels, these racemosely arranged, 6–10-flowered, about 7–8 mm. in diameter, the peduncles 1 cm. long, the pedicels about 2 mm. long. Calyx glabrous, the margin slightly dentate. Petals 5, ovate, acute, glabrous on both surfaces, 1.6 mm. long. Stamens 5, the filaments about the same length as the petals. Ovary 5-celled, rarely 6-celled.

FUKIEN: Without precise locality, *H. H. Chung 6157* (HOLOTYPE, NY).

Known from the original collection only. Very near to *S. venulosa* (Wight & Arn.) Harms, which is a species of wide distribution in southwestern China. The leaves of *S. fukienensis* differ from those of the latter in being all 3-foliolate, and with generally shorter and broader leaflets. More material from Fukien and Kwangtung is desirable to define the relationships of these two species.

27. **Schefflera venulosa** (Wight & Arn.) Harms in Engl. & Prantl, Nat. Pflanzenfam. 3(8): 39. 1894; Chung, Mem. Sci. Soc. China **1**: 186. 1924.

Paratropia venulosa Wight & Arn. Prodr. **1**: 377. 1834; Walp. Rep. **2**: 433. 1843; Wight, Ill. Ind. Bot. **2**: *t. 118*. 1850.

Heptapleurum venulosum Seem. Jour. Bot. **3**: 80. 1865, Revis. Heder. 44. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 729. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 454. 1911; W. W. Smith, Notes Bot. Gard. Edinb. **17**: 295. 1930.

Heptapleurum Cavalerieri Lévl. Rep. Sp. Nov. **9**: 326. 1911, Fl. Kouy-Tchéou 35. 1914.

Schefflera elliptica sensu Hand.-Maz. Symb. Sin. **7**: 691. 1933, pro parte; Rehder, Jour. Arn. Arb. **15**: 114. 1934; non Harms.

A shrub, sometimes scandent and occasionally epiphytic, with 5–7-foliolate leaves, the leaflets elliptic and acute, and with large terminal panicles, the flowers in umbels, racemosely arranged on the lateral branches. Leaves 5- rarely 7-foliolate, petiolate; petioles glabrous, terete, 10–12 cm. long; leaflets petiolulate, coriaceous, glabrous on both surfaces, elliptic, 7–15 cm. long, 3–10 cm. wide, the apex obtuse, acute, or more rarely acuminate, the base rounded to attenuate, the margins entire, slightly revolute, the lateral nerves 4 or 5 on each side, the nerves and tertiary veins distinct on both surfaces; petiolules 1.5–6 cm. long, the lateral ones shorter. Inflorescence in terminal loose panicles, slightly tomentose, soon

glabrous, 10–20 cm. long; flowers small, in umbels, these racemosely arranged on the lateral branches, the bracts triangular, 7 mm. long, soon caducous; peduncles 0.7–1.5 cm. long, with bracts at base, soon caducous, the umbels about 10-flowered, 0.7–1 cm. in diameter, the pedicels 2–3 mm. long. Calyx glabrous, the margin entire to subentire. Petals 5, thin, glabrous on both surfaces, 2 mm. long. Stamens 5, the filaments slightly longer than the petals. Ovary 5-celled, the disk slightly raised, the stigmas 5, sessile. Fruit ovoid, 3–4 mm. long, 5-angular, the disk conical, ¼ the length of the fruit, glandular-punctate when young.

YUNNAN: No precise locality, *Forrest 7698* (NY), *9739* (W), *11558* (W), *11873* (NY); eastern flank of the N'Maikha-Salween divide, *Forrest 17896* (AA); Mengtze, *Henry 9403* (AA, NY), *9403B* (AA, NY, W), *9403D* (AA, W), *10541* (AA, NY, W), *13044* (AA); Mengtze, *Handel-Mazzetti 6047* (AA); Mt. Tien-pi-shan, near Puerfu, *J. F. Rock 2863* (AA, W), *2866* (AA, W); between Tengyueh and Lungling, *J. F. Rock 7232* (AA, W); Shweli River basin, East of Tengyueh, *J. F. Rock 7851* (W); Kien-shuei Hsien, *H. T. Tsai 53121* (AA), *53252* (AA); Lung-ling Hsien, *H. T. Tsai 55034* (AA); Ping-pien Hsien, *H. T. Tsai 60006* (AA); Chen-kan Hsien, *C. W. Wang 72847* (AA); Lang-tsang Hsien, *C. W. Wang 76448* (AA); Fo-hai, *C. W. Wang 73883* (AA), *74308* (AA), *74911* (AA); Nan-chiao, *C. W. Wang 75152* (AA), *76887* (AA); Che-li Hsien, Sheau-meng-yeang, *C. W. Wang 75571* (AA), *75771* (AA); Shunning, Tehseling, *T. T. Yü 16249* (AA); Shunning, Wen-kwan-kuai, *T. T. Yü 16290* (AA); Shunning, Hila, *T. T. Yü 16563* (AA); Huaning, Ta-ko-le, *Y. Tsiang and H. Wang 16290* (AA).

KWEICHOW: Ouest de Lo-fou, rivière de Pia-nai, *J. Cavalerie 2658* (holotype of *Heptapleurum Cavalerieri* Lévl.).

KWANGSI: Sin Shu, *R. C. Ching 7327* (NY).

ADDITIONAL DISTRIBUTION: India to Indo-China.

Schefflera venulosa (Wight & Arn.) Harms is considered to be a synonym of *S. elliptica* (Bl.) Harms by C. B. Clarke, Handel-Mazzetti, and Rehder, the type of the latter being from Java (*Sciadophyllum ellipticum* Bl. Bijdr. 878. 1826). Craib, in his consideration of the Siamese species of *Schefflera* (Fl. Siam. Enum. **1**: 798. 1931), considers that the two species are distinct, and after comparing our Asiatic and Javan material I am convinced that he is correct. The Chinese material certainly represents the same species as the Indian form originally described by Wight and Arnott and as illustrated by Wight. It differs from the Javan species, *S. elliptica,* in the numerous umbels which are racemosely arranged on the elongated 10–15 cm. long panicle branches, while in Javan material the umbels are few in number and are subcorymbosely arranged on the rather short panicle branches. The typical form of *S. elliptica* (Bl.) Harms is excellently illustrated by Koorders and Valeton, Atlas Baumart. Java **4**: t. *688*. 1916. A glance at Wight's and the Koorders-Valeton excellent illustrations is all that is needed to show the very striking differences between the two species.

28. **Schefflera khasiana** (C. B. Clarke) Viguier, Ann. Sci. Nat. IX. Bot. **9**: 351. 1909; Hand.-Maz. Symb. Sin. **7**: 691. 1933.

Heptapleurum khasianum C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 730. 1879.

A tree with 7-foliolate leaves, the leaflets narrowly oblong, acuminate, and with panicled inflorescence, the flowers in umbels, racemosely arranged on the elongated, tomentose, and compound lateral branches. Leaves generally 7-foliolate, petiolate; petioles terete, glabrous, about 20 cm. long; leaflets coriaceous, glabrous, narrow-oblong, 15–20 cm. long, 6–9 cm. wide, the apex acuminate, the base rounded, the margins entire, the lateral nerves 8–12 on each side, the tertiary nerves distinct beneath; petiolules 2.5–6 cm. long, glabrous. Inflorescence a panicle, 20–30 cm. long, tomentose to glabrescent, the flowers in umbels, these racemosely arranged on the lateral branches, the branches elongated, ascending, compound, tomentose, the bracts oblong, acuminate, 6 mm. long, caducous, the umbels about 8-flowered, the peduncles 8 mm. long, the pedicels 2–3 mm. long,

tomentose to glabrescent. Calyx tomentulose, 5-dentate. Petals 5, tomentulose without, glabrous within. Stamens 5, the filaments slightly longer than the petals. Ovary 5-celled, the stigmas sessile. Fruits globose, 4 mm. across, glabrous, indistinctly 5-angular, the disk depressed-conical, not pentagonal, the stigmas 5, sessile.

YUNNAN: No data, *H. T. Tsai 55894* (AA).

ADDITIONAL DISTRIBUTION: India.

It may be that the oldest name for this species is *Schefflera Wallichiana* (Wight & Arn.) Harms, based on *Paratropia Wallichiana* Wight & Arn. Prodr. **1**: 337. 1834 (*Heptapleurum Wallichianum* Seem.); see Handel-Mazzetti's note (Symb. Sin. **7**: 691. 1933) stating that it is doubtful if the two supposedly different species are distinct.

Doubtful and Excluded Species

1. **Schefflera Fargesii** (Franch.) Harms ex Diels, Bot. Jahrb. **29**: 486. 1900; Chung, Mem. Sci. Soc. China **1**: 186. 1924.

Heptapleurum Fargesii Franch. Jour. de Bot. **10**: 306. 1896, Pl. Sin. Ecl. Prim. 26. 1897.

Fragments of the type, fruits, and a very small bit of one leaflet (*Farges 895 & 75*, ex herb. Paris.) are in the herbarium of the Arnold Arboretum. Franchet did not indicate the number of ovary-cells, but an examination of the fruits shows them to be 2-celled, which is definitely not a *Schefflera* character. The plant may well prove to be a species of *Acanthopanax*, but the material available is too fragmentary for more definite determination at this time. In any case it is not a *Schefflera*.

2. **Schefflera pauciflora** Viguier, Ann. Sci. Nat. IX. Bot. **9**: 357. 1909; Hand.-Maz. Oesterr. Bot. Zeitschr. **87**: 124. 1938.

Viguier's species was based on a fruiting specimen collected in Tonkin by Balansa. Handel-Mazzetti has recorded the species as occurring in Kwangsi on the basis of *Ching 8078*. I have seen no Chinese material that I would refer to Viguier's species and suspect that Handel-Mazzetti may have had a specimen representing what I have described as *Schefflera glomerulata* Li.

V. DIPLOPANAX Handel-Mazzetti

Diplopanax Hand.-Maz. Sinensia **3**: 198. 1933.

A glabrous, unarmed tree. Leaves simple, entire, exstipulate. Flowers in single, terminal, spike-like inflorescences, the upper ones solitary, the lower ones umbellate, these sessile or peduncled, the bracts caducous, the pedicels none, the flowers articulate just below the calyx tube. Calyx margin 5-dentate. Petals 5, valvate. Stamens 10, 5 often sterile, the anthers oblong. Ovary 1-celled, 1-ovulate, the style single. Fruit 1-seeded, oval, very hard when dry, the mesocarp very thick. Seed laterally compressed and curved, horseshoe-shaped in cross section; endosperm uniform.

Monotypic and endemic in Kwangsi.

1. **Diplopanax stachyanthus** Hand.-Maz. Sinensia **3**: 198. 1933; Chun, Sunyatsenia **4**: 247. 1940. Fig. 5.

A tree 5–13 m. tall, with simple entire leaves, shining above, and with a single terminal inflorescence with sessile flowers arranged singly above and umbellately on short peduncles below. Branches dark brown, with white oblong lenticels. Leaves petiolate, exstipulate, coriaceous, obovate-lanceolate, 9.5–15.5 cm. long, 3.5–6.5 cm. wide, the apex acute, the base narrowly cuneate, the margins entire, glabrous, dark green and shining above, pale green beneath, sparingly stellate-

hairy along the midrib or glabrous beneath, the lateral nerves about 6–11, distinct on both surfaces, the tertiary veins inconspicuous above; petioles stout, glabrous, 2–6 cm. long. Inflorescence single, terminal, to 27 cm. long, the upper part spike-like with the flowers single and sessile, the lower flowers umbellate, the umbels generally 3–5-flowered, on short peduncles, the peduncles becoming gradually longer toward the base of the inflorescence, 0.2–1.5 cm. long, the main axis and peduncles stout; bracts broadly ovate, caducous, the pedicels absent, the flowers

Fig. 5. *Diplopanax stachyanthus; 1.* branchlet with inflorescence, × ½; *2.* flower in bud, × 4; *3.* the same, longitudinal section, × 4; *4.* fruit, × ½; *5.* cross-section of fruit, × ½.

articulate below the calyx-tube. Calyx-tube elongated, 3–4 mm. long, densely pubescent, narrow below, broad above, the margin 5-dentate, the lobes triangular, acute. Petals 5, valvate, ovate, acuminate, 3 mm. long, fleshy, pubescent outside. Stamens 10, 5 often sterile, the filaments shorter than the petals, the anthers oblong. Ovary 1-celled, the style conical. Fruit ovoid, hard when dry, 4.5 cm. long, 3.5 cm. broad, slightly compressed laterally, glabrous, with subconspicuous linear nerves and very thick mesocarp, 1-seeded, the seed laterally compressed and curved, horseshoe-shaped in cross-section.

KWANGSI: Bin Long, Minshan, North of Luchen, *R. C. Ching 5969* (ISOTYPE, LU, NY); Shang-sze District, Shih Wan Tai Shan, near Iu Shan Village, *W. T. Tsang 22361* (AA, LU); Shang-sze District, Shih Wan Tai Shan, Tang Lung Village, *W. T. Tsang 24385* (AA, NY) (fruit); Yaoshan, Ping Nan, *C. Wang 39333* (AA), *40165* (AA).

Tsang's specimens cited above are apparently more mature than were those of Handel-Mazzetti, with generally larger leaves, longer petioles, and with very few hairs on the midrib on the lower surface. *Wang 39333* and *40165* have the flowers all sessile on the main axis. Otherwise these specimens closely agree with the original description and with an isotype. The fruit is here described for the first time. It is very large and quite different from all other araliaceous fruits known to me.

VI. Dendropanax Decaisne & Planchon

Dendropanax Decne. & Planch. Rev. Hort. IV. **3**: 107. 1854.

Gilibertia Ruiz & Pav. Prodr. Fl. Peruv. 50. *t. 8.* 1794; non *Gilibertia* J. F. Gmel. 1791.

Textoria Miq. Ann. Mus. Bot. Lugd.-Bat. **1**: 12. 1863.

Unarmed glabrous trees or shrubs, occasionally slightly pubescent. Leaves simple, entire or sometimes palmately 3–5-lobed, often beautifully pellucid-glandular under transmitted light; stipules small, scarcely united within the petioles or absent. Flowers bisexual or polygamous, umbellate, the umbels solitary or several together, simple or racemosely or paniculately arranged; bracts small or wanting; pedicels not articulate under the flower. Calyx-margin entire or 5-dentate. Petals 5, valvate. Stamens 5, the anthers oval or oblong. Ovary 5-celled. Styles distinct or united throughout their whole length or only at base and spreading at tips. Disk fleshy, shortly conical. Fruit globose or ellipsoid, distinctly or obscurely 5-angular; seeds laterally compressed; endosperm uniform.

About 80 species in tropical America and Eastern Asia.

Type species: *Dendropanax pendulus* (Swartz) Decne. & Planch. (*Hedera pendula* Swartz).

The name *Gilibertia* Ruiz & Pav. is invalid because of the earlier *Gilibertia* J. F. Gmel. A. C. Smith has treated the problem of generic nomenclature in Trop. Woods **66**: 1. 1941, and Merrill, who compiled a list of the known Old World species, has also considered it in Brittonia **4**: 129–134. 1941. Nakai (Fl. Sylvat. Koreana **16**: 41. 1927, and Jour. Jap. Bot. **15**: 6–11. 1939) revived the name *Textoria* Miq. for the Asiatic species. The inflorescence character depended upon by him to separate *Textoria* from *Dendropanax* (simple umbels in *Textoria,* compound inflorescences in *Dendropanax*) fails, for some of the Asiatic species have compound inflorescences while some of the American ones have simple umbels. Among the thirteen species and one variety from China enumerated here, eight have simple umbels, while the other six have compound inflorescences or variations from simple umbels to compound inflorescences within the same species.

Merrill, in his list of Asiatic *Dendropanax* (l.c.), states that "an examination of a long series of tropical American and Asiatic species convinced me that there is no valid reason for generically separating the Old World species from those of the New World. In most of the Old World species the umbels are simple, but several species have compound inflorescences; in some of the New World species they are simple, in others the inflorescences are compound. I can find no constant fruit or flower characters by which two genera may be distinguished."

Prof. Merrill has called my attention to the glands present in the leaves of many of the species, which can be seen by transmitted light. This character is important in differentiating the species, but has been overlooked by most authors. Fortunately, type materials of all the Chinese species are available for this study, and this character is accordingly incorporated in the descriptions as given below.

KEY TO SPECIES AND VARIETIES

A. Leaves glandular-punctate, the glands more or less evident under transmitted light.
B. Styles distinct for ⅓ their length or more, divergent.
C. Leaves firmly chartaceous to coriaceous, the tertiary veins distinct on both surfaces; inflorescences simple or compound; fruit ovoid.
D. Leaves entire .....1. *D. Chevalieri.*
DD. Leaves denticulate .....1a. *D. Chevalieri* var. *dentigerus.*
CC. Leaves chartaceous to subchartaceous, the tertiary veins obscure; umbels solitary; fruit globose.
D. Styles distinct, divergent .....2. *D. stellatus.*
DD. Styles united for ⅔ their length, divergent above .....3. *D. confertus.*
BB. Styles united throughout their whole length into a single column, or, if distinct, then at the tip only and erect, not divergent.
C. Styles united throughout their whole length; inflorescences simple or compound.
D. Leaves membranaceous, lanceolate, mostly deeply 2–3-lobed ....4. *D. angustilobus.*
DD. Leaves firmly chartaceous, oblong to oblong-elliptic, entire ....5. *D. oligodontus.*
CC. Styles distinct at their tips, united below into a column; inflorescences always simple.
D. Leaves subcoriaceous; fruit oblong-ovoid, ribbed .....6. *D. productus.*
DD. Leaves subchartaceous; fruit globose, not ribbed .....7. *D. kwangsiensis.*
AA. Leaves not glandular-punctate.
B. Styles 5, distinct, divergent .....8. *D. inflatus.*
BB. Styles united throughout their whole length into a single column.
C. Leaves 3-nerved at the base.
D. Leaves elliptic-ovate to oblong, glabrous on both surfaces; inflorescences glabrous, simple, the umbels many-flowered (up to 100) .....9. *D. paviflorus.*
DD. Leaves lanceolate, sparingly tomentose beneath; inflorescences tomentose, compound, the umbels few-flowered (about 20) .....10. *D. ferrugineus.*
CC. Leaves not 3-nerved at the base.
D. Leaves oblong-elliptic to elliptic-ovate; inflorescences always compound, with 5–7 umbels .....11. *D. hainanensis.*
DD. Leaves elliptic, oblong, or lanceolate; inflorescences simple or with 1–3 umbels.
E. Leaves coriaceous, the lateral nerves inconspicuous, 5–10 on each side; umbels 30(or more)-flowered .....12. *D. proteus.*
EE. Leaves subchartaceous to subcoriaceous, the lateral nerves subconspicuous, 10–13 on each side; umbels 10–15-flowered .....13. *D. acuminatissimus.*

1. **Dendropanax Chevalieri** (Viguier) Merr. Jour. Arn. Arb. **19:** 59. 1938; Merr. & Chun, Sunyatsenia **5:** 152. 1940; Merr. Brittonia **4:** 132. 1941.

Gilibertia Chevalieri Viguier in Lecomte, Fl. Gén. Indo-Chine **2:** 1181. *f. 141.* 1923.

Dendropanax japonicus sensu Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 342. 1888; Dunn & Tutch. Kew Bull. Add. Ser. **10:** 119. 1912; non Seem.

Gilibertia trifida sensu Chung, Mem. Sci. Soc. China **1:** 186. 1924; non Makino.

Gilibertia sinensis Nakai, Jour. Arn. Arb. **5:** 24. 1924, *pro parte;* Rehder, Jour. Arn. Arb. **8:** 180. 1927; Chien, Contr. Biol. Lab. Sci. Soc. China **3:** 68. 1927.

Gilibertia dentigera var. *anodonta* Hand.-Maz. Symb. Sin. **7:** 692. 1933, Oesterr. Bot. Zeitschr. **88:** 305. 1939, syn. nov.

Gilibertia intercedens Hand.-Maz. Symb. Sin. **7:** 691. 1933, Oesterr. Bot. Zeitschr. **88:** 304. 1939; Merr. Brittonia **4:** 132. 1941, *pro parte,* syn. nov.

Textoria sinensis Nakai, Jour. Jap. Bot. **15:** 9. 1939.

A small tree or shrub, 5–7 m. high, the leaves firmly chartaceous to coriaceous, glabrous, glandular, elliptic, mostly entire, sometimes 3–5-lobed, 3-nerved, the umbels terminal, solitary or few together, either fascicled or umbellately arranged on a short rachis. Leaves with numerous reddish-brown translucent glands, petiolate, generally elliptic, 6–15 cm. long, 3–7.5 cm. wide, sometimes much larger, the apex acuminate, the base attenuate to cuneate, lightly 3-nerved, the margins entire, the lateral nerves about 4–6 on each side, the secondary and tertiary veins elevated and distinct on both surfaces; petioles 0.5–5 cm. long. Inflorescence terminal, glabrous, the flowers in umbels, the umbels solitary or

few together either fascicled at the tips of the branchlets or umbellately arranged on a shortly produced rachis and thus forming a compound inflorescence; umbels many-flowered, the bracts ovate, acuminate, caducous, the peduncles glabrous, 2–3 cm. long, the bracteoles short-triangular, the pedicels glabrous, 0.5–1 cm. long. Calyx glabrous, the margin subentire to slightly dentate, the lobes 5, short, mucronulate. Petals 5, triangular, 2 mm. long, glabrous, reflexed. Stamens 5, erect, the filaments 2.5–3 mm. long. Ovary 5-celled, the styles 5, connate at the base, distinct above, at first erect, later divergent. Fruit oblong, to 7–9 mm. long, very slightly 5-angular or not, with many longitudinal ridges, the styles persistent, divergent.

CHEKIANG: Tien Tai Shan, *H. H. Hu 331* (AA, NY); south of Pangyang, Tai-suan, *R. C. Ching 2100* (AA, W).

ANHWEI: Hwangshan, *N. K. Ip UN4781* (AA), *A. N. Steward UN7141* (AA, W), *R. C. Ching 2937* (AA, W); no precise locality, *R. C. Ching 3181* (AA); Wu Yuan, *R. C. Ching 3229* (AA).

KIANGSI: Tzu-chi Hsien, *H. H. Hu 1238* (AA), *1249* (AA); in monte Hwangdschuling inter Dingschon et Ningdu, *Wang-Te-Hui 376* (isoparatype of *Gilibertia intercedens* Hand.-Maz., AA); Ningdu, Lien-hwaschan, *Wang-Te-Hui 465* (AA).

YUNNAN: Shang-pa, *H. T. Tsai 58678* (AA), *58728* (AA); Ping-pien Hsien, *H. T. Tsai 61564* (AA), *61624* (AA); Bar-ru-lah, Salwin-Kiukiang divide, *C. W. Wang 67557* (AA); Shi-gi-tung, Champutong, *C. W. Wang 67562* (AA); Kiukiang Valley, Taron, Sronwang, *T. T. Yü 20169* (AA); Kiukiang Valley, north of Monting, *T. T. Yü 20382* (AA); Salwin-Kiukiang divide, Muchielung, *T. T. Yü 20584* (AA).

KWANGSI: Seh-feng-dar-shan, south of Nanning, *R. C. Ching 8306* (NY); Shang-sze District, Shap Man Taai Shan, *W. T. Tsang 22650* (AA), *24257* (AA); Yao-shan, *C. Wang 39641* (AA), *40162* (AA); Tse-yuen District, *Z. S. Chung 83453* (AA), *83505* (AA), *83518* (AA), *83534* (AA); Kwei-ling District, Chi-fen-shan, Hsi-chang Village, *W. T. Tsang 28480* (AA).

KWANGTUNG: Lofaushan, *Handel-Mazzetti 132* (AA); Canton, *C. O. Levine CCC1376* (AA, G, W), *CCC1433* (AA, G), *CCC1525* (AA, G, W); Lofaushan, *S. P. Ko 50164* (NY), *Merrill 11035* (NY); Perfect Pool Gorge, *Levine and McClure CCC6841* (NY); Lung T'au Shan, *To & Tsang LU12523* (NY); Hongkong, New Territory, Tai Ue Mountain, *Fung Hom 114 = LU19422* (NY); Lo Chang District, Chong Ueng Shan, near Kau Fung, *W. T. Tsang 20965* (AA); Mei District, Yam Na Shan, *W. T. Tsang 21434* (AA, NY); Wung Yuen District, Fan Shiu Shan, Fan Shiu Au, *S. K. Lau 2741* (AA).

HAINAN: Poting, *F. C. How 73623* (AA).

FUKIEN: Kuliang Hills, near Foochow, *J. B. Norton 1363* (G, W); northern Fukien, Shou-ning, *R. C. Ching 2294* (AA, G, W); Buong Kang, Yenping, *H. H. Chung 3428* (AA).

ADDITIONAL DISTRIBUTION: Indo-China.

This species is characterized by its rather thick leaves, with prominent and elevated veins on both surfaces and reddish-brown translucent glands. The fruit is oblong and with longitudinal ribs. The leaves are very variable in size and are sometimes 3–5-lobed. In some cases, the fruit is infested by insects, resulting in abnormally large sizes and irregular shapes.

As I have interpreted the species it includes very many specimens that are strictly *Textoria* as characterized by Miquel and accepted by Nakai, in that the inflorescences are simple umbels. However, a number of specimens that I cannot otherwise distinguish from *Dendropanax Chevalieri* have distinctly compound inflorescences, in that from two to five umbels are borne on a shortly produced rachis. As Nakai interpreted *Textoria* as having simple umbels to take all the Old World species and *Dendropanax* (*Gilibertia*) as having compound inflorescences and limited to tropical America, the following specimens would fall in the latter group as opposed to the bulk of the cited specimens being strictly *Textoria: Tsang 22650, Steward 7141, Levine 1525, Merrill 11035, Wang 39641, 40162, Chung 83505,* and *Tsai 61564.* Incidentally, intermediate

forms occur, many of the simple-umbelled forms having a solitary terminal umbel, while others have several umbels fascicled at the tips of the branches but without a produced rachis.

Nakai's species (Jour. Arn. Arb. **5**: 24. 1924) is evidently the same as Viguier's. His specimens include both denticulate and entire-leaved forms. He apparently overlooked the glands, as he mentioned in his key that it is "epunctata." In his later treatment (Jour. Jap. Bot. **15**: 1–18. 1939) he distinguished this species from *Dendropanax dentigerus* (Harms) Merr. by its leaves being entire. Certainly *D. dentigerus* differs from *D. Chevalieri* in no other respect than the denticulate leaves. Harms' original description applies only to plants with solitary umbels, but, as Handel-Mazzetti has noted (Symb. Sin. **7**: 692. 1933), there are specimens with compound inflorescences that otherwise agree with Harms' species. The inflorescence of *D. Chevalieri* varies from solitary umbels to several umbels on a somewhat produced axis. In both cases, the styles are united slightly below and divergent above. Occasionally, on otherwise entire-margined leaves of some of the specimens, one or few very small teeth may be found. Thus, the separation of a species on the basis of dentation alone is scarcely warranted. In my judgment, *D. dentigerus* ought to be regarded as a variety of *D. Chevalieri.*

The Yunnan specimens, as well as some of the specimens from Kwangtung and Kwangsi, have much less prominent nerves. Craib (Kew Bull. 1931: 206. 1931, Fl. Siam. Enum. 1: 796. 1931) described *Gilibertia siamensis* from Siam, differentiating it from *Dendropanax Chevalieri* by this character. However, there are transitions between them and a sharp line of distinction is difficult to draw. The final decision must await a larger series of specimens from certain regions.

1a. **Dendropanax Chevalieri** var. **dentigerus** (Harms) comb. nov.

Gilibertia dentigera Harms ex Diels, Bot. Jarhb. **29**: 487. 1900; Chung, Mem. Sci. Soc. China **1**: 186. 1924; Hand.-Maz. Symb. Sin. **7**: 692. 1933.

Gilibertia sinensis Nakai, Jour. Arn. Arb. **5**: 24. 1924, *pro parte.*

Gilibertia intercedens Hand.-Maz. Symb. Sin. **7**: 691. 1933, Oesterr. Bot. Zeitschr. **88**: 305. 1939; Merr. Brittonia **4**: 132. 1941, *pro parte.*

Textoria dentigera Nakai, Jour. Jap. Bot. **15**: 8. 1939.

Dendropanax dentigerus Merr. Brittonia **4**: 132. 1941.

Leaves remotely and minutely denticulate.

CHEKIANG: Changhua, *F. N. Meyer 1530* (AA).

KIANGSI: In monte Dunghwa-schan inter Schitscheng et Ninghwa, *Wang-Te-Hui 319* (isotype of *Gilibertia intercedens* Hand.-Maz., AA); Kui-chi and Ning-du, *H. H. Hu 1265* (AA); Tsoongjen, *Y. Tsiang 10127* (NY), *10157* (NY); Kiennan District, Sai Hang Cheung, near Tung Lei Village, *S. K. Lau 3949* (AA); Lungnan District, Oochi Shan, near Lam Uk Tung Village, *S. K. Lau 4428* (AA).

HUNAN: Yun-schan, Wukang, *Handel-Mazzetti 672 = 12309* (AA), *839 = 12407* (AA); Chang-ning Hsien, Shih-tse-yuen, *C. S. Fan and Y. Y. Li 341* (AA).

SZECHUAN: Nan-chuan, Mao-p'o-shan, *C. Bock and A. Rosthorn 750* (HOLOTYPE of *Gilibertia dentigera* Harms, photo. and merotype in AA); Mapien Hsien, *F. T. Wang 23615* (AA).

KWEICHOW: Tuyun, *Y. Tsiang 6764* (NY); Fan Chin Shan, Mo Chao Ho, *Chiao and Cheo 807* (AA, NY, W).

KWANGTUNG: Wung Yuen District, Tsung Wan Shan, Wong Chuk I, *S. K. Lau 2415* (AA).

FUKIEN: Yenping, Shih-sin-keng Village, *H. H. Chung 2855* (AA); Kuliang, *H. H. Chung 6608* (AA).

This variety, like the species, includes material having simple solitary umbels (*Fan & Li 341, Tsiang 10127, Handel-Mazzetti 839 = 12407*) and compound inflorescences, in its variable inflorescence characters conforming to the species.

2. **Dendropanax stellatus** sp. nov.

Frutex circa 1 m. altus. Foliis subchartaceis glabris petiolatis ovato-oblongis, 7–18 cm. longis, 2–5 cm. latis, glanduloso-punctatis, glandulis semipellucidis rufo-fulvis, apice acuminatis, basi late acutis vel rotundatis, 3-nerviis, margine integris, nervis lateralibus utrinsecus 6–12, utrinque elevatis conspicuis, adscendentibus, prope margine anastomosantibus, venis tertiariis obscuris; petiolis 0.5–4.5 cm. longis. Floribus ignotis. Inflorescentiis fructigeris umbellatis terminalibus solitariis glabris, umbella circiter 20 fructus gerente, pedunculis 1.5 cm. longis, pedicellis 8 mm. longis. Fructu (immaturo) globoso 5-loculari, 3.5 mm. diametro, stylis 5, 1.5 mm. longis, ad medium connatis, supra divaricatis.

KWANGSI: San Chiang Hsien, Lao Pao K'ou, *A. N. Steward and H. C. Cheo 1054* (TYPE, AA), Sept. 12, 1935.

The leaves resemble those of *Dendropanax oligodontus* Merr. & Chun in texture and shape but differ in their entire margins. The styles are distinct and divergent above, while in *D. oligodontus* they are united throughout their length into a single erect column. The species differs from *D. Chevalieri* (Viguier) Merr. in the leaves being thinner, ovate-oblong in shape, and with ascending and anastomosing lateral nerves and obscure tertiary veins, as well as in the style character.

Fig. 6. *Dendropanax confertus; 1.* branchlet with infructescence, × ½; *2.* fruit, × 2.

3. **Dendropanax confertus** sp. nov. Fig. 6.

Planta arborescens 2–20 m. alta. Foliis chartaceis glabris petiolatis ovato-ellipticis, 6–12 cm. longis, 2–4.5 cm. latis, glanduloso-punctatis, glandulis semipellucidis rufo-fulvis, apice longe acuminatis, basi late cuneatis, 3-nerviis, margine integris vel leviter distanter serrulatis, nervis lateralibus utrinsecus 10–16, utrinque subconspicuis, venis tertiariis obscuris; petiolis 0.5–5 cm. longis. Floribus ignotis. Inflorescentiis fructigeris terminalibus solitariis umbellatis glabris, breviter pedunculatis, umbella valde fructigera, pedunculis 0.5 cm. longis, pedicellis 3–4 mm. longis. Fructibus globosis 6 mm. crassis, angularibus, plus minusve

confertis, stylis 5 brevissimis, 1 mm. vel minus longis, ad medium connatis, apicibus distinctis, divaricatis.

KWANGTUNG: Between Wu Tung and Chang Kiang, *W. Y. Chun 5789* (AA); Lokchang District, Hwan-kun, near Jui Feng, *Y. Tsiang 1331* (AA).

KWANGSI: Yao Shan, *S. S. Sin 11346* (NY), *11742* (NY), *C. Wang 40542* (TYPE, AA), Dec. 4, 1936.

This species is easily recognized by its globose, more or less compactly arranged fruits with very short styles united below and divergent at their tips. It resembles *Dendropanax parviflorus* (Champ.) Benth. in general appearance, but is easily distinguished by its glandular leaves, larger 5-angled fruits, shorter pedicels, fewer-flowered umbels, and divergent styles. It is near *D. Chevalieri* (Viguier) Merr., differing in the leaves with subconspicuous lateral veins and obscure tertiary veins, the shorter pedicels and peduncles, and the globose fruits which are more or less compactly arranged. Moreover, the styles are very short and united to the middle.

4. **Dendropanax angustilobus** (Hu) Merr. Brittonia **4:** 132. 1941.

Gilibertia angustiloba Hu, Jour. Arn. Arb. **11:** 226. 1930; Hu in Hu and Chun, Ic. Pl. Sin. **5:** 36. *t. 236.* 1937.

A shrub, 2 m. tall, the leaves membranaceous, glabrous, narrowly lanceolate, not lobed or more commonly deeply 2- or 3-lobed, glandular, penninerved or slightly 3-nerved at the base, the umbels terminal, 2–3 together umbellately or subracemosely arranged on a short axis. Leaves bright green above, paler beneath, with very minute scattered glands, petiolate, to 20 cm. long, about 2 cm. wide, the apex long-acuminate, the base cuneate to rounded-cuneate, the margins entire or obscurely and very remotely denticulate, the teeth mucronulate, the lobes, when present, narrowly lanceolate, slightly narrowed at the base, tapering toward the apex, the midrib elevated on both surfaces, the lateral nerves about 15–20 or more on each side, scarcely distinguishable, the tertiary veins obscure; petioles 2–11 cm. long, rufous-scurfy at base, finally glabrous. Inflorescence in terminal umbels, 2–3 together, to 12 cm. long, the axis short or almost none, bearing about three umbellately or subracemosely arranged 10–15-flowered umbels, the bracts triangular-lanceolate, acute, 12 mm. long, the peduncles 1–2.5 cm. long, rufous-scurfy, with minute scaly bracteoles at the base. Calyx rufous-scurfy, minutely 5-dentate. Petals 5 or 6, ovate, 4 mm. long, glabrous. Stamens 5 or 6. Ovary 5- or 6-celled, the styles united into a single column, the stigmas punctiform. Fruit globose, 6 mm. in diameter, the style-column persistent, the pedicels slender, to 2 cm. long, scabrid.

KWANGSI: Shih-wan-dar-shan, south of Nanning, *R. C. Ching 8019* (HOLOTYPE, isotype, NY, merotype, AA); Shang-sze District, Shap Man Taai Shan, Tang Lung Village, *W. T. Tsang 24235* (AA).

This species is characterized by its membranaceous, lanceolate, mostly deeply 2- or 3-lobed leaves with obscure veinlets and scattered minute glands. It resembles *Dendropanax proteus* (Champ.) Benth. and *D. acuminatissimus* Merr. in general appearance, but may be readily distinguished by the presence of glands in its much thinner leaves. Hu (in Hu and Chun, Ic. Pl. Sin. **5:** 36. 1937) mentions that "in specimens from three provinces, there is found not a single entire leaf or any departure from the deeply lobed type, a very important diagnostic character for this species." However, *Tsang 24235,* which clearly belongs to this species, has the lower leaves mostly entire and the upper ones 3-lobed.

5. **Dendropanax oligodontus** Merr. & Chun, Sunyatsenia **5:** 151. 1940; Merr. Brittonia **4:** 133. 1941.

A shrub, 1–3 m. tall, the leaves chartaceous, glabrous, oblong to oblong-elliptic, not lobed or deeply 2- or 3-lobed, glandular, 3-nerved, the umbels terminal, soli-

tary or 2–5 together subumbellately arranged on a short rachis. Leaves firmly chartaceous, petiolate, 9–17 cm. long, 3–6 cm. wide, with reddish-brown translucent glands, the apex slenderly acuminate, the base acute to subrounded, 3-nerved, the margins entire below, distinctly and irregularly serrulate or subentire in the upper half, the lateral nerves about 8–10 on each side, slender, ascending, anastomosing, elevated and conspicuous on both surfaces, the tertiary veins obscure; petioles 1–4 cm. long. Inflorescence in terminal umbels, solitary or 2–5 subumbellately arranged on a terminal rachis up to 1 cm. long, the umbels about 2 cm. in diameter, 10–30-flowered, the peduncles 1–1.5 cm. long, the pedicels 4–6 mm. long. Calyx glabrous, 2 mm. long, minutely 5-dentate. Petals 2 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles united into a column about 1 mm. long. Fruit globose, about 5–6 mm. across, 5-seeded or 2–4-seeded by abortion, the style-column persistent, about 2 mm. long.

HAINAN: Po-ting, *F. C. How 73528* (HOLOTYPE, AA), *S. K. Lau 28169* (AA), *28337* (AA).

This species is characterized by its relatively thin, rather many-nerved, and glandular-punctate leaves, which are commonly distantly and irregularly serrulate in the upper part. The leaves of this species are variable in size and shape. The type-specimen has all leaves unlobed, with only one being imperfectly 2-lobed. *Lau 28337* has all leaves unlobed, while *Lau 28169* has only one unlobed leaf and the rest all 3-lobed. These two specimens are fruiting ones with firmer leaves than the type.

Fig. 7. *Dendropanax productus;* *1.* branchlet with infructescence, × ½; *2.* fruit, × 4.

6. **Dendropanax productus** sp. nov. Fig. 7.

Frutex circa 1.5 m. altus. Foliis subcoriaceis glabris petiolatis obovato-oblongis, 5–11 cm. longis, 1.5–4 cm. latis, glanduloso-punctatis, glandulis semipellucidis rufo-fulvis, apice longe acuminatis, basi cuneatis, 3-nerviis, margine integris, nervis lateralibus utrinsecus circa 6–10 adscendentibus, supra conspicuis, subtus inconspicuis, venis tertiariis obscuris; petiolis 1–2.5 cm. longis. Floribus ignotis. Inflorescentiis fructigeris umbellatis solitariis terminalibus glabris, umbella circiter 20 fructus gerente; pedunculis 2–2.5 cm. longis, pedicellis 1.2 cm. longis. Fructu oblongo-ovoideo, 7 mm. longo, 3.5 mm. crasso, pentagono, longitudinaliter 5-costato, margine persistente calyce coronato, stylis 1.75 mm. longis, ad ⅘ longitudinis connatis, apicibus distinctis, erectis, seminibus 5.

KWANGTUNG: Hwei-yang District, Lin-fa-shan, Sam Hang Shek T'an Village, *W. T. Tsang 25945* (TYPE, AA), Oct. 1–10, 1935.

This species is near *Dendropanax Chevalieri* (Viguier) Merr., differing in the narrower leaves with inconspicuous lateral nerves above. Moreover, the fruit is long and slender, and the styles erect and united for ⅘ their length.

7. **Dendropanax kwangsiensis** sp. nov.

Frutex circa 2–3 m. altus. Foliis subchartaceis glabris petiolatis ovato-ellipticis, 4.5–12 cm. longis, 1.5–5 cm. latis, glanduloso-punctatis, glandulis semipellucidis flavidis, apice acuminatis, basi acutis 3-nerviis, margine integris, nervis lateralibus utrinsecus 8–10, utrinque subconspicuis, venis tertiariis obscuris; petiolis 0.5–2.5 cm. longis. Floribus ignotis. Inflorescentiis fructigeris terminalibus umbellatis, umbellis solitariis vel 2 vel 3 fasciculatis, glabris, breviter pedunculatis, umbella circiter 20 fructus gerente, pedunculis 0.5–1 cm. longis, pedicellis 1–1.5 cm. longis. Fructu globoso 5–6 mm. diametro, stylis connatis, columna persistente, 1–1.5 mm. longa, apice 2–3-fida, seminibus 5 vel 1–3, caeteris abortivis.

KWANGSI: Shang-sze District, Shap Man Taai Shan, Tang Lung Village, *W. T. Tsang 24270* (AA, NY); Shang-sze District, Shap Man Taai Shan, Nam She Village, *W. T. Tsang 24765* (TYPE, AA, isotype, NY), Nov. 28, 1934.

This species is near *Dendropanax angustilobus* (Hu) Merr., differing in the leaves being slightly thicker, ovate-elliptic in shape, and all unlobed. The fruit resembles that of the latter except that the style-column is divided at the tip.

8. **Dendropanax inflatus** sp. nov.

Arbor circa 10 m. alta. Foliis chartaceis glabris petiolatis eglandulosis ovato-ellipticis, 5.5–13.5 cm. longis, 2.5–5.5 cm. latis, apice acuminatis, basi late acutis 3-nerviis, margine integris, nervis lateralibus utrinsecus circa 4–6, supra inconspicuis, subtus conspicuis, venis tertiariis supra inconspicuis, subtus conspicuis; petiolis 1.5–8 cm. longis. Floribus ignotis. Inflorescentiis fructigeris umbellatis solitariis terminalibus glabris, umbella circiter 15 fructus gerente, pedunculis 3.5 cm. longis, pedicellis 1.75 cm. longis. Fructu 5-loculari oblongo vel pyriformi, 1–1.5 cm. longo, 7 mm. magno, caeruleo (fide collectoris), in specimine typico nigro, leviter angulari, in longitudinem costato, stylis 5 persistentibus 2 mm. longis distinctis divaricatis.

KWANGSI: Ling Wun, *S. K. Lau 28812* (TYPE, AA), July 30, 1937.

The size and shape of the fruit may be due to insect infestation. Although the fact that modifications possibly caused by insect injury are of no diagnostic value, the species is further characterized by being the only one in the group with eglandular leaves that has distinct and divergent styles. The characteristic styles, as well as the oblong ribbed fruit, are similar to those of *Dendropanax Chevalieri* (Viguier) Merr., but the new species is readily distinguished from the latter by its eglandular leaves.

9. **Dendropanax parviflorus** (Champ.) Benth. Fl. Hongk. 137. 1861; Seem. Jour. Bot. **2:** 301. 1864, Revis. Heder. 27. 1868; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 343. 1888; Dunn & Tutch. Kew Bull. Add. Ser. **10:** 119. 1912; Hand.-Maz. Beih. Bot. Centralbl. **52B:** 170. 1934; Merr. Brittonia **4:** 132. 1941.[1]

Hedera parviflora Champ. ex Benth. in Hook. Jour. Bot. Kew Gard. Misc. **4:** 122. 1852; Walp. Ann. **5:** 84. 1858.

Gilibertia parviflora Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 41. 1894; Chung, Mem. Sci. Soc. China **1:** 186. 1924.

Textoria parviflora Nakai var. *typica* Nakai, Jour. Jap. Bot. **15:** 7. 1939.

A shrub, about 2–3 m. high, the leaves membranaceous to chartaceous, glabrous, elliptic-ovate or oblong, eglandular, 3-nerved, the umbels terminal, solitary or 2 or 3 together. Leaves petiolate, 5–15 cm. long, 2–5 cm. wide, the apex acuminate,

[1] The Malay Peninsula form referred to the species by C. B. Clarke in Hook. f. Fl. Brit. Ind. **2:** 733. 1879 is *Dendropanax Maingayi* King.

the base broadly cuneate, slightly or distinctly 3-nerved, the margins entire, the lateral nerves 5–8 on each side, subconspicuous on both surfaces, the tertiary veins obscure; petioles 0.5–8 cm. or more long. Inflorescence in terminal umbels, solitary or 2- or 3-fascicled at the branchlet tips, glabrous, the umbels very many-flowered (about 100 or more), the peduncles 1–1.5 cm. long, thickened at the tip, the pedicels 0.5–1 cm. long. Calyx glabrous, 1.5 mm. long, the margin 5-dentate. Petals 5, 1.5 mm. long. Stamens 5. Ovary 5-celled, the styles united into a column. Fruit globose, about 5 mm. in diameter, the style-column persistent.

KWANGSI: Seh-feng-dar-shan, south of Nanning, *R. C. Ching 7943* (AA, W); Yao-shan, *C. Wang 39974* (AA), *40072* (AA).

KWANGTUNG: Hongkong, *Champion 390* (HOLOTYPE of *Hedera parviflora* Champ., photo. and merotype in AA); Hongkong, *C. Ford s. n.* (NY, W); Tsatmukngao, Lienping, *Handel-Mazzetti 589* in part (AA); Yen-wong-chai, Yao-shan, *S. S. Sin 11020* (NY); Tapu District, Tai Mo Shan, *W. T. Tsang 21224* (AA, NY); Wung-yuen District, Tsing-wan-shan, Wong Chuk I, *S. K. Lau 2012* (AA), *2325* (AA); Sinfung District, Sha Lo Shan, Wa Mei T'ong Village, *Y. W. Taam 283* (AA).

Fig. 8. *Dendropanax ferrugineus;* *1.* branchlet with inflorescence, × ½; *2.* flower, × 4; *3.* longitudinal section of flower, × 4; *4.* fruit, × 2.

This species is closely related to *Dendropanax proteus* (Champ.) Benth. in its eglandular leaves, the many-flowered umbels, and the simple style-column. It can be distinguished by its elliptic-ovate to oblong leaves, which are thinner, 3-nerved, and invariably entire rather than lobed.

10. **Dendropanax ferrugineus** sp. nov. Fig. 8.

Frutex parvus circa 1–2 m. altus. Foliis chartaceis vel subchartaceis, supra viridibus glabris, subtus pallide viridibus, parce ferrugineo-tomentosis, mox glabris, eglandulosis, petiolatis, lanceolatis, elobatis vel profunde 2- vel 3-lobatis, ad 25 cm. longis, 1.5–5 cm. latis, apice longe cuspidato-acuminatis, basi acutis vel subrotundatis, leviter 3-nerviis, margine remote serrulatis, lobis lanceolatis, basi paulo angustatis, nervis lateralibus utrinsecus 10–16, inconspicuis vel subconspicuis, venis tertiariis obscuris; petiolis gracilibus 4.5–10 cm. longis. Inflorescentiis terminalibus 4–12 cm. longis, dense ferrugineo-tomentosis, mox glabrescentibus, axibus brevibus vel elongatis, 1–7 cm. longis, umbellas 2–4 circa 20-floras gerentibus, bracteis oblongis 6 mm. longis; pedunculis 2.5–5 cm. longis, bracteolis minimis persistentibus ad basim fultis. Calyce 2.5 cm. longo leviter ferrugineo-tomentoso 5-dentato, lobis triangularibus obtusis. Petalis 5 triangulari-ovatis 2.5 mm. longis glabris. Staminibus 5. Ovario 5-loculari, stylis in columnam connatis. Fructu globoso 8 mm. diametro.

KWEICHOW: Tating, *Y. Tsiang 8894* (NY).

KWANGSI: Yao Shan, *C. Wang 40174* (TYPE, AA), Oct. 15, 1936.

KWANGTUNG: Wah-shui-shan, border of Yung-yuen and Ying-tak Districts, *S. K. Lau 957* (AA, NY).

This distinct species is characterized by its lanceolate, remotely serrulate leaves which are eglandular and ferruginous-tomentose with scattered hairs beneath when young. The inflorescence is also densely ferruginous-tomentose when young. The leaves of *Wang 40174* are all entire, those of *Tsiang 8894* all 3-lobed, while those of *Lau 957* are entire as well as 2- and 3-lobed.

11. **Dendropanax hainanensis** (Merr. & Chun) Chun, Sunyatsenia **4**: 247. 1940; Merr. & Chun, Sunyatsenia **5**: 152. 1940; Merr. Brittonia **4**: 132. 1941.

Gilibertia hainanensis Merr. & Chun, Sunyatsenia **2**: 296. *f. 37*. 1935.

Textoria hainanensis Nakai, Jour. Jap. Bot. **15**: 10. 1939.

A tree 10–18 m. high, the leaves chartaceous, glabrous, oblong-elliptic to oblong-ovate, eglandular, the base not 3-nerved, the inflorescence formed by several umbels, umbellately arranged at the tip of the axis and with 1 or 2 racemosely arranged below. Leaves olive to brown, 7–11 cm. long, 2.5–4 cm. wide, the apex slenderly acute to subcaudate-acuminate, the base acute, the margins entire, pinnately nerved, the lateral nerves about 8 on each side, subconspicuous to inconspicuous, the tertiary veins obscure; petioles 1–5 cm. long. Inflorescence terminal, 6–8 cm. long, glabrous, the main axis 4–5 cm. long, with 4–5 umbels umbellately arranged at the tip and usually 1 or 2 racemosely arranged below, the umbels 10–15-flowered, 1.2–1.5 cm. in diameter, the peduncles 2 cm. long, the pedicels 6 mm. long. Calyx 1.5 mm. long, glabrous, the margin subentire, fimbriate. Petals 5, ovate-oblong, 1.5 mm. long, glabrous, reflexed. Stamens 5, the filaments as long as the petals. Ovary 5-celled, the styles united into a single column, the stigmas punctate. Fruit globose, about 1 cm. in diameter, slightly 5-angular.

KWEICHOW: Kweiting, *Y. Tsiang 5475* (NY); Ta Yo Yen, Fan Chin Shan, *Steward, Chiao, and Cheo 374* (AA, W).

KWANGSI: Chu Fang Shan, Shan Fan, north of Luchen, *R. C. Ching 5918* (NY); Yeo Mar Shan, north of Lin Yen, *R. C. Ching 7213* (NY); Bako Shan, western Poseh, *R. C. Ching 7490* (NY); Shang-sze District, Shap Man Taai Shan, *W. T. Tsang 22406* (AA), *22575* (AA), *22601* (AA); Yao Shan, *C. Wang 39584* (AA), *40070* (AA), *40466* (AA).

KWANGTUNG: Wan Tong Shan, *H. Y. Liang 60149* (AA).

HAINAN: Fan Yah, *N. K. Chun & C. L. Tso 44103* (HOLOTYPE, NY, isotype, AA); Ng Chi Leng, *N. K. Chun & C. L. Tso 44156* (paratype, NY, isoparatype, AA); Loktung, *S. K. Lau 27343* (AA).

This species is near *Dendropanax Chevalieri* (Viguier) Merr. but is readily distinguishable by its lack of basal marginal nerves and its relatively inconspicuous lateral nerves.

12. **Dendropanax proteus** (Champ.) Benth. Fl. Hongk. 136. 1861; Seem. Jour. Bot. **2:** 301. 1864, Revis. Heder. 27. 1868; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 343. 1888; Dunn & Tutch. Kew Bull. Add. Ser. **10:** 119. 1912; Merr. Brittonia **4:** 134. 1941.

Hedera protea Champ. ex Benth. in Hook. Jour. Bot. Kew Gard. Misc. **4:** 122. 1852; Walp. Ann. **5:** 84. 1858.

Gilibertia protea Harms in Engl. & Prantl, Nat. Pflanzenfam. 3(8): 41. 1894; Chung, Mem. Sci. Soc. China **1:** 186. 1924.

Mesopanax proteus Viguier, Ann. Sci. Nat. IX. Bot. **6:** 104. 1906.

Textoria protea Nakai, Jour. Jap. Bot. **15:** 8. 1939.

A shrub 2–3 m. high, the leaves coriaceous, glabrous, broadly elliptic to oblong or lanceolate, entire or deeply 3-lobed, eglandular, the entire leaves penninerved, the bases of the 3-lobed leaves prominently 3-nerved, both types occasionally occurring on the same branchlet, the umbels terminal, solitary or 2 or 3 together. Leaves petiolate, unlobed or sometimes deeply 3-lobed, broadly elliptic to oblong or lanceolate, 2.5–15 cm. long, 1–4 cm. wide, the apex acuminate, the base cuneate, 3-nerved in the 3-lobed leaves, penninerved in the entire leaves, the margins entire, the lateral nerves 5–10 on each side, inconspicuous, the tertiary veins obscure; petioles 0.2–5 cm. long. Inflorescence in terminal umbels, solitary or 2 or 3 together, glabrous, the umbels very many-flowered (30–100), the peduncles 0.5–2 cm. long, dilate at the tip, the pedicels 0.5–1 cm. long. Calyx glabrous, the margin 5-dentate. Petals 5, 2 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles united into a column. Fruit globose, 5 mm. in diameter, the style-column persistent.

KWANGSI: Shang-sze District, Shap Man Taai Shan, Tang Lung Village, *W. T. Tsang 24016* (AA, NY).

KWANGTUNG: Hongkong, *Champion s. n.* (HOLOTYPE of *Hedera protea* Champ., photo. and merotype in AA); Hongkong, *Wight 180* (G, W), *Herb. Hongk. 924* (AA); Hongkong, Happy Valley, *Herb. Hongk. 10198* (AA); Lofaushan, *Merrill 10327* (NY); Hongkong, New Territory, Tai Ue Mountain, *Fung Hom 166 = LU19474* (NY); Mei District, Yam Na Shan, *W. T. Tsang 21316* (AA).

This species is very variable in the shape and size of its leaves and the length of its petioles. It is closely allied to *Dendropanax parviflorus* (Champ.) Benth. and *D. acuminatissimus* Merr., which also have eglandular leaves. It differs from the former in its generally more lanceolate leaves, which are without basal nerves, more coriaceous, frequently lobed, and with less discernible nerves. It can be distinguished from the latter by its much thicker leaves with inconspicuous nerves and its more numerously flowered umbels.

13. **Dendropanax acuminatissimus** Merr. Philip. Jour. Sci. **13:** 152. 1918, Brittonia **4:** 131. 1941.

Gilibertia acuminatissima Hu, Jour. Arn. Arb. **5:** 232. 1924; Chung, Mem. Sci. Soc. China **1:** 186. 1924; Chun, Sunyatsenia **1:** 279. 1934.

Textoria parviflora Nakai var. *acuminatissima* Nakai, Jour. Jap. Bot. **15:** 7. 1939.

A slender erect shrub, 3–4 m. high, the leaves chartaceous to subcoriaceous, glabrous, lanceolate, eglandular, penninerved, the umbels terminal, solitary or in threes. Leaves petiolate, 7–11 cm. long, 1–2 cm. wide, the apex slenderly caudate-acuminate, the base acute, penninerved, the margins entire, the lateral nerves

10–13 on each side, spreading-ascending, anastomosing, subconspicuous to indistinct above, inconspicuous beneath, the tertiary veins obscure; petioles 1–3.5 cm. long. Inflorescence in terminal umbels, solitary or in threes, 10–15-flowered, about 2 cm. across, the peduncles 5–10 mm. long, the bracteoles linear, 2–8 mm. long, caducous, the pedicels about 6 mm. long. Calyx glabrous, about 3 mm. long, the margin minutely 5-dentate. Petals 5, ovate to oblong-ovate, 2.5 mm. long. Stamens 5, the filaments about 2 mm. long. Ovary 5-celled, the styles united into a single column, short, furrowed. Fruit globose, 6 mm. in diameter, the style-column persistent.

KWANGSI: Waitsap District, Tongshan, near Sap-luk Po Village, *W. T. Tsang 22847* (AA).

KWANGTUNG: Canton, *C. O. Levine CCC1315* (AA, G, W); Lofaushan, *Merrill 10187* (HOLOTYPE, NY, isotype, LU); Sinfung District, Sha Lo Shan, Wai Me Tong Village, *Y. W. Taam 123* (AA).

This species is characterized by its very narrowly lanceolate leaves which are not lobed and which lack lateral basal nerves. It is related to *Dendropanax proteus* (Champ.) Benth. and *D. angustilobus* (Hu) Merr., but can be distinguished from the former by its thinner leaves, more distinct and more numerous lateral nerves, and from the latter by the absence of glands in the leaves. Nakai (l.c.) treats this as a variety of *Dendropanax parviflorus* (Champ.) Benth., but I think it is closer to *D. proteus*.

VII. HEDERA Linnaeus

Hedera Linn. Gen. ed. 1. 56. 1737, Sp. Pl. 202. 1753.

Evergreen shrubs, climbing by aerial rootlets. Leaves glabrous, simple, entire or coarsely lobed or dentate; stipules wanting. Flowers in solitary or racemose umbels, the bracts very small; pedicels not articulate under the flower. Calyx-margin subentire or 5-dentate. Petals 5, valvate. Stamens 5, the anthers oval. Ovary 5-celled. Styles connate into a short column. Fruit globose, berry-like, 5-celled, the seeds ovoid; albumen ruminate.

Five species in Europe, North Africa, and Asia.

Type species: *Hedera Helix* Linn.

Hedera Helix Linn. is introduced and planted in different parts of China, especially in the coastal provinces. There are many forms in cultivation, but I have seen only a single sterile Chinese specimen and am unable to determine which variety is represented (Fukien: Koo Long Ue, Yen's Garden, *F. A. McClure B64 = LU19235* [LU, NY]).

1. **Hedera nepalensis** K. Koch var. **sinensis** (Tobl.) Rehder, Jour. Arn. Arb. **4:** 250. 1923, **8:** 180. 1927, **9:** 99. 1928; Chun, Sunyatsenia **1:** 280. 1934.

Hedera Helix sensu Hance, Jour. Bot. **20:** 6. 1882; Franch. Pl. David. **2:** 67. 1888; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 343. 1888; Harms ex Diels, Bot. Jahrb. **29:** 487. 1900; Diels, Notes Bot. Gard. Edinb. **7:** 258, 288. 1912; Dunn & Tutch. Kew Bull. Add. Ser. **10:** 120. 1912; Lévl. Fl. Kouy-Tchéou 34. 1914, Cat. Pl. Yun-Nan 11. 1915; Courtois, Notes Bot. Chine Mus. Heude **2:** 55. 1933; non Linn.

Hedera himalaica Tobl. var. *sinensis* Tobl. Gatt. Hedera. 79. *f. 39–42.* 1912.

Hedera himalaica sensu Harms & Rehder in Sargent, Pl. Wils. **2:** 555. 1916; Chung, Mem. Sci. Soc. China **1:** 186. 1924; non Tobl.

Hedera sinensis Tobl. Gatt. Hedera. 80. 1912; Chung, Mem. Sci. Soc. China **1:** 186. 1924; Hand.-Maz. Symb. Sin. **7:** 693. 1933.

A scandent shrub, to 20 m. long, with aerial roots. Indumentum on young growth scaly, the scales with 15–20 rays. Leaves simple, petiolate, exstipulate, coriaceous, glabrous, dark green above, pale or yellowish beneath, those of sterile branches triangular-ovate to triangular-oblong, 5–12 cm. long, 3–10 cm. wide,

entire or 3-lobed, usually truncate at the base, those of fertile branches elliptic-ovate to elliptic-lanceolate, 5–12 cm. long, 2–10 cm. wide, the apex acuminate, the base broadly cuneate, the margins entire, the lateral nerves and tertiary veins manifest on both surfaces; petioles scaly, 1–8 cm. long. Inflorescence in umbels, few to many, the peduncles 1–2.5 cm. long, the bracts small, triangular, 2–3 mm. long, the pedicels 0.8–1 cm. long, pubescent. Calyx 2 mm. long, pubescent, the margin subentire. Petals 5, triangular-ovate, 3 mm. long, slightly pubescent outside. Stamens 5, the filaments 2–3 mm. long. Ovary 5-celled, the styles connate into a short conical column. Fruit globose, yellow or red, about 0.8–1 cm. across, the style-column ultimately 1–2 mm. long.

KANSU: Southwestern Kansu, near Siku, *F. N. Meyer 2007* (AA); southern Kansu, Mountains of Motzuping, *J. R. Rock 12063* (AA).

SHENSI: Hou-kio-zaez, *J. Giraldi s. n.* (AA); Tai-pei-shan, *W. Purdom 1011* (AA, W); Hantschung, *Fenzel 976* (AA).

KIANGSU: Shanghai, *D. Macgregor 30* (AA).

CHEKIANG: No precise locality, *Barchet 198* (W), *Chekiang Univ. LU77714* (LU); Ningpo, *D. Macgregor s. n.* (AA); Chu-hsien, Chu-chow, *H. H. Hu 534* (AA, LU, NY); Taichow, *R. C. Ching 1302* (LU, W); Yen Tang Shan, *C. Y. Chiao UN14755* (AA, W); no precise locality, *S. Chen 889* (AA).

ANHWEI: Chu Hwa Shan, *R. C. Ching 2621* (AA, LU).

HUNAN: Hsikwangschan, Hsinhwa, *Handel-Mazzetti 589* in part = *11753* (AA); Yun-schan, Wukang, *Wang-Te-Hui 104* (AA, W); Sinning Hsien, Ma-ling-tung, *S. C. Fan & Y. Y. Li 662* (AA).

HUPEH: No precise locality, *Henry 1258* (W), *2984* (G); Ichang, *Henry 3261* (AA, G), *3341* (G); Hsin Shan, *Wilson s. n.* (NY); Ichang, *Wilson 2437* (AA, G, W); Tien-pong-scian, *Silvestri 1613* (AA); Enshih Hsien, *H. C. Chow 1960* (AA, NY); Chienshih Hsien, *H. C. Chow 1721* (AA, NY).

SZECHUAN: Muli, *Handel-Mazzetti 7540* (AA); between Baor and Tha, *H. Smith 4858* (AA); Muli, Mt. Mitzuga, *J. F. Rock 18270* (AA, NY, W); Tien-chuan Hsien, *W. P. Fang 3436* (AA, NY); Nan-chuan Hsien, *W. P. Fang 5630* (AA, NY, W), *5717* (AA, NY), *5785* (AA, NY); Omei Shan, *W. P. Fang 3140* (AA, NY), *6691* (AA), *T. T. Yü 467* (AA), *531* (AA), *Y. S. Liu 1431* (AA), *C. Y. Chiao & S. C. Fan 310* (AA); Shih-tsien Hsien, *Y. Tsiang 4123* (AA); Ping-shan Hsien, *F. T. Wang 22762* (AA); Kuan Hsien, *S. S. Chien 5702* (AA).

SIKANG: Tachienlu, *A. E. Pratt 789* (G).

YUNNAN: Mengtze, *Henry 9856* (AA, NY), *9856A* (AA, NY); Yuanchuang, *Henry 13304* (AA, W); Shweli-Salwin divide, *Forrest 499* (AA); no precise locality, *Forrest 9245* (AA), *9395* (AA), *11357* (AA); Yunnanfu, *Handel-Mazzetti 173* (W); Yunnanfu bei Pichiquan, *C. Schneider 156* (AA, G); zwischen Yunnanfu und San-ying-pan bei Schin-lung, *C. Schneider 320* (AA); San-ying-pan, Yunnanfu, *C. Schneider 409* (AA); prope pagum Hoji in valle Sung-quah, *C. Schneider 3059* (AA, G, W); inter Hoching et Sung Kweh, *C. Schneider 3267* (AA, G); Kouty, Pei Yen Tsin, *S. Ten 600* (AA, W); District of Likiang, Yangtze watershed, *J. F. Rock 5523* (AA, NY, W); back of Nguluke, western end Likiang plain, *J. F. Rock 5756* (AA, NY, W); Shweli River drainage basin to summit of Shweli-Salwin watershed east of Tengyueh, *J. F. Rock 7626* (AA, NY, W); Yen-shan, *H. T. Tsai 51446* (AA); Lan-pin Hsien, *H. T. Tsai 54085* (AA), *56119* (AA); Wei-si Hsien, *H. T. Tsai 57816* (AA), *57868* (AA), *59594* (AA), *59847* (AA), *59890* (AA), *59919* (AA); Mekong, Tsawarung, *C. W. Wang 66134A* (AA); Dzer-nar, Tsawarung, *C. W. Wang 66351* (AA); Soo-roo-la, Champutong, *C. W. Wang 66655* (AA); Wei-si Hsien, *C. W. Wang 67699* (AA); Li-kiang Hsien, *C. W. Wang 70469* (AA); no precise locality, *T. T. Yü 5264* (AA), *7945* (AA), *10422* (AA); Chungtien Plateau, *T. T. Yü 11322* (AA); Kiukiang Valley, Taron, Muchielu, *T. T. Yü 21006* (AA); Kiukiang Valley, Kungming, *T. T. Yü 20547* (AA); Likiang, Wan-feng-tze, *K. M. Feng 275* (AA); Ru-shu-tong, Hot Spring, near To-kwan-chen, on the banks of the Yangtze River, North of Likiang Snow Range, *K. M. Feng 565* (AA); northwestern Likiang, Tachen on the Yangtze River, *R. C. Ching 21891* (AA); Likiang Valley, *R. C. Ching 30021* (AA).

KWEICHOW: Holupai, Tungtze, *Y. Tsiang 905* (W); Anlung, *Y. Tsiang 7452* (AA, NY, W); Tseh-heng, *Y. Tsiang 9272* (AA, NY); Fan Ching Shan, Ching-chio-ping, Ta Ho Yen, *Steward, Chiao, & Cheo 694* (AA, NY, W).

KWANGTUNG: Maan Chi Shaan, *W. T. Tsang CCC8732* (LU, W); Yam Na Mt., *Chan Kwai Shang 139 = LU14169* (LU); between Wu-tung and Chiang-kiang, *W. Y. Chun 5782* (AA); Loh-chang District, Chong Uen Shan near Kau Fung, *W. T. Tsang 20652* (AA, NY, W); Wung-kuen District, Fan Shin Shan, *S. K. Lau 2642* (AA); Bird Gorge, Lofaushan, *F. P. Metcalf 17627* (LU); Jen-hwa District, Man Chi Shan, Shek-pik-ha Village, *W. T. Tsang 26148* (AA).

KWANGSI: Yeo Mar Shan, northern Hin Yen, *R. C. Ching 7203* (LU, NY).

FUKIEN: Central Fukien, *Hongk. Herb. 2760* (AA, NY); Kuliang Hills near Foochow, *J. B. Norton 1345* (W); Kuliang and vicinity, *Tang Sui Ging 6765* (AA).

The Chinese plant is very close to the Himalayan species. It chiefly differs in the lobes of the leaves on the sterile branches; these leaves are more or less pinnately lobed with 2–5 lobes on each side in the Himalayan plant and only 3-lobed in the Chinese plant. The leaves are also usually longer and narrower in Himalayan specimens. Material in herbaria has often been variously referred to *Hedera himalaica* Tobl., *Hedera Helix* Linn., *Gilibertia sinensis* Nakai = *Dendropanax Chevalieri* (Viguier) Merr., and *Dendropanax proteus* (Champ.) Benth.

VIII. BRASSAIOPSIS Decaisne & Planchon

Brassaiopsis Decne. & Planch. Rev. Hort. IV. **3**: 106. 1854.

Large shrubs or trees, glabrous or tomentose, armed or not. Leaves palmately lobed, with sinuses of variable depth, or digitately compound; stipules connate within the petiole, not prominent. Flowers often polygamous, in umbels in large compound panicles, stellate-tomentose while young, the bracts small, often persistent; pedicels rising from a dense cluster of persistent bracteoles, not articulate under the flower. Calyx-margin 5-dentate. Petals 5, valvate. Stamens 5, the anthers oval. Ovary 2-celled. Styles 2, united, long or short. Fruit broadly globose or turbinate, 2-seeded or 1-seeded by abortion; seeds not compressed; endosperm uniform or ruminate.

About 20 species distributed from India, Burma, and South China to the Malay Archipelago.

Type species: *Brassaiopsis glomerulata* (Bl.) Regel (*Brassaiopsis speciosa* Decne. & Planch.).

KEY TO SPECIES AND VARIETIES

A. Leaves palmately lobed (Section I. *Palmatae* Harms).
  B. Lobes divided less than half way down the leaf, their bases very broad ...1. *B. Hainla.*
  BB. Lobes divided more than half way down the leaf, their bases more or less narrowed.
    C. Inflorescence prickly.
      D. Leaves coriaceous, the lobes about 10, spinosely serrulate; petiole densely prickly. 2. *B. hispida.*
      DD. Leaves chartaceous, the lobes about 5–7, ciliate-serrate; petiole sparsely prickly. 3. *B. ciliata.*
    CC. Inflorescence unarmed.
      D. Lobes strongly narrowed at the base, with pseudopetiolules.
        E. Pseudopetiolules short, narrowly winged, the lobes very deep, divided to 6/7 the length of the leaf .....4. *B. dumicola.*
        EE. Pseudopetiolules long, widely winged, the lobes divided to 4/5 the length of the leaf .....5. *B. palmipes.*
      DD. Lobes slightly narrowed at the base.
        E. Lobes 3, rarely 4–6 .....6. *B. ficifolia.*
        EE. Lobes 7–9 .....7. *B. fatsioides.*

AA. Leaves digitately compound (Section II. *Digitatae* Harms).
B. Leaflets sessile, 3 or 4 .....8. *B. triptcris.*
BB. Leaflets petiolulate, 3–9.
C. Petiolules stout, 1.5–2.5 cm. long; leaves densely ferruginous-bristly.
9. *B. chenkangensis.*
CC. Petiolules slender, 1–4.5 cm. or more long; leaves glabrous to sparsely setose or ferruginous-tomentose.
D. Leaflets membranaceous, sparsely setose above, glabrous beneath, not ferruginous-tomentose .....10. *B. gracilis.*
DD. Leaflets membranaceous to chartaceous or coriaceous, glabrous to ferruginous-tomentose, never setose.
E. Leaflets small, 9–18 × 2.5–4.5 cm., narrow, ovate-lanceolate, very long-acuminate.
11. *B. acuminata.*
EE. Leaflets large, 15–25 × 6–10 cm., elliptic-oblong, long- or short-acuminate.
F. Leaflets narrowly cuneate at the base; petiolules 1 cm. long, ferruginous-tomentose to subglabrous .....12. *B. shweliensis.*
FF. Leaflets broad-cuneate to rounded at the base; petiolules 2–9 cm. long, glabrous.
G. Inflorescence paniculate.
H. Pedicels of fruits 1.2–1.5 cm. long .....13. *B. glomerulata.*
HH. Pedicels of fruits 5–7 mm. long..13a. *B. glomerulata* var. *brevipedicellata.*
G. Inflorescence corymbose-paniculate.
H. Leaflets coriaceous; pedicels of fruits about 1 cm. long.
13b. *B. glomerulata* var. *coriacea.*
HH. Leaflets subchartaceous; pedicels of fruits 2.5 cm. long.
13c. *B. glomerulata* var. *longipedicellata.*

1. **Brassaiopsis Hainla** (Ham.) Seem. Jour. Bot. **2**: 291. 1864, Revis. Heder. 18. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 735. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 425. 1911; Chung, Mem. Sci. Soc. China **1**: 187. 1924; Hand.-Maz. Symb. Sin. **7**: 693. 1933.

Hedera Hainla Ham. in D. Don, Prodr. Fl. Nepal. 187. 1825.

A prickly tree 8–15 m. tall, with chartaceous palmately 5-lobed leaves, the lobes divided to less than half-way down the leaf, and with large terminal panicles formed by umbels, the young parts stellate-tomentose. Leaves 15–25 cm. across, petiolate, stipulate, the base cordate; lobes about 5, divided to $\frac{2}{3}$ the length of the leaf, triangular, 8–10 cm. long, 7–9 cm. wide, the apex cuspidate, the base broad, the margins subspinosely serrate, slightly pubescent above, soon glabrescent to glabrous, sparingly stellate-pubescent beneath, the lateral nerves distinct on both surfaces; petioles pubescent at first, soon glabrescent, 15–20 cm. long; stipules not prominent. Inflorescence in large terminal panicles, pubescent at first, the flowers in umbels, these many-flowered, 5 cm. in diameter, the peduncles 4–5 cm. long, the bracts triangular, 5 mm. long, densely stellate-pubescent, persistent, the pedicels 1 cm. long, arising from a dense cluster of bracteoles 2 mm. long and very densely pubescent. Calyx pubescent, 2 mm. long. Petals 5, pubescent outside. Stamens 5, the filaments 3 mm. long. Ovary 2-celled, the disk elevated, the styles united into a column. Fruit globose, subdidymous, about 8 mm. across, the style-column 3 mm. long.

YUNNAN: No precise locality, *Forrest 8192* (AA), *9670* (AA), *12848* (AA, NY, W), *26172* (NY), *26207* (AA, NY); Szemao, *Henry 11882* (AA, W); Yuan-chiang, *Henry 1329* (AA, NY); between Mopo and Man-pieh, *J. F. Rock 2928* (AA, W); Mong-ka, *H. T. Tsai 56305* (AA), *56809* (AA); Lung-ling Hsien, *H. T. Tsai 55510* (AA); Lan-tsang Hsien, *C. W. Wang 76858* (AA); Shunning, Huilungsu, *T. T. Yü 16135* (AA); Salwin Valley, *T. T. Yü 22058* (AA).

ADDITIONAL DISTRIBUTION: India.

A species closely related to *Brassaiopsis palmata* Kurz, from which it may be distinguished by its leaves divided less than halfway down into triangular segments, while in *B. palmata* the leaves are divided into oblong segments. The

several Chinese specimens in herbaria referred to *B. palmata* are *B. Hainla* Seem. Apparently *B. palmata* is not found in China.

2. **Brassaiopsis hispida** Seem. Jour. Bot. **2:** 291. 1864, Revis. Heder. 18. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2:** 736. 1879; Dunn, Jour. Linn. Soc. Bot. **39:** 425. 1911; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Hand.-Maz. Symb. Sin. **7:** 694. 1933.

An armed shrub, 1–5 m. tall, with prickly petioles and coriaceous deeply palmately 10-lobed leaves, the lobes spinosely serrate, and with prickly terminal panicles formed by many-flowered umbels. Prickles numerous, lanceolate, compressed, deflexed. Leaves about 30 cm. across, petiolate, stipulate, yellowish when dry; lobes about 10, oblong-lanceolate, divided to 5/6 the length of the leaf, 20–30 cm. long, 7–9 cm. wide, acuminate at apex, narrowed toward base, the margins spinosely serrate, glabrous above, glabrous or sparingly hispidulous beneath, the lateral nerves and tertiary veins distinct above, very prominent beneath; petioles prickly, 20 cm. long; stipules united within the petioles, the apices free, linear. Inflorescence in terminal panicles, prickly, the flowers in umbels, the umbels many-flowered, 3 cm. in diameter, the peduncles 5 cm. long, prickly, the bracts lanceolate, 1 cm. long, tomentose, persistent, the pedicels ferruginous-tomentose, 1 cm. long, the bracteoles numerous, lanceolate, tomentose. Calyx densely tomentose, 2 mm. long, the margins 5-dentate. Petals 5, 2–3 mm. long, glabrous on both surfaces. Stamens 5, the filaments 2 mm. long. Ovary 2-celled, the disk elevated, hemispherical, the styles united into a column, 1 mm. long.

YUNNAN: Shang-pa Hsien, *H. T. Tsai 54951* (AA); Chiu-kiang, west of Champutung, *C. W. Wang 67568* (AA); Taron-Taru Divide, Ducahwang, *T. T. Yü 20875* (AA).

This species can be distinguished from its allies, *B. fatsioides* Harms and *B. ciliata* Dunn, by its prickly stem, panicles, and petioles, and the spinosely serrate leaves.

3. **Brassaiopsis ciliata** Dunn, Jour. Linn. Soc. Bot. **35:** 499. 1903; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Rehder, Jour. Arn. Arb. **15:** 115. 1934.

Acanthopanax Bodinieri Lévl. Bull. Acad. Géogr. Bot. **24:** 143. 1914, Fl. Kouy-Tchéou 33. 1914.

An armed shrub about 2 m. tall, with sparsely bristle-prickly petioles, chartaceous deeply palmately 5–7-lobed leaves, the margins ciliate-serrate, and with prickly paniculate inflorescence formed by umbels. Leaves about 30 cm. across, petiolulate, the base round-cordate; lobes 5–7, divided to 3/4 the length of the leaf, oblong, about 15–20 cm. long, 8–12 cm. wide, the apex acuminate, the margins ciliate-serrate, sparsely bristly above and on the nerves beneath, the lateral nerves prominent on both surfaces, the tertiary veins subconspicuous; petioles sparsely bristle-prickly, 20 cm. or more long. Inflorescence in panicles, the main axis and branches prickly, the flowers in umbels, the umbels racemosely arranged. Fruit didymo-globose or ovoid, 7–8 mm. across, 2-seeded, the disk small, 3–4 mm. across, about 1/8 the length of the fruit, the style-column 2 mm. long, the pedicels slender, 2 cm. long.

SZECHUAN: Mt. Omei, *Y. S. Liu 1726* (AA).

YUNNAN: Feng Chen Lin Peak, *Henry 9180* (AA, NY); Mengtze, *Henry 9180A* (ISOTYPE, W); Wen-shan Hsien, *H. T. Tsai 51890* (AA).

KWEICHOW: Gan-pin, *L. Martin 1924* (holotype of *Acanthopanax Bodinieri* Lévl., photo. in AA); Tuhshan, *Y. Tsiang 6916* (NY).

KWANGSI: Ling-yun Hsien, Loh Hoh Tseun, *Steward & Cheo 402* (AA).

A species allied to *Brassaiopsis fatsioides* Harms, from which it may be easily distinguished by the presence of prickles on the main axis and branches of the inflorescence. The Szechuan specimen cited above is sterile. Its petiole bears scattered strong prickles. A photograph of *Henry 9180* in Kew Herbarium by

R. C. Ching is in the herbarium of New York Botanical Garden, the specimen being labeled *B. hispida* Seem. var. *chinensis* Dunn. It is identical with *Henry 9180* (AA) cited above. The differences between *B. hispida* and *B. ciliata* are given in the discussion of the former.

4. **Brassaiopsis dumicola** W. W. Smith, Notes Bot. Gard. Edinb. **10:** 11. 1917; Chung, Mem. Sci. Soc. China **1:** 187. 1924.

A prickly shrub, 6–9 m. tall, with chartaceous deeply palmately 9-lobed leaves, the leaves subspinose-serrulate, narrowed below forming narrowly winged pseudopetiolules, and with tomentose to glabrescent panicles formed by many-flowered umbels. Leaves 30 cm. or more across, petiolate, stipulate, the base cordate; lobes about 9, divided to 6/7 the length of the leaf, oblong, 12–18 cm. long, the apex acuminate, the base much narrowed forming narrowly winged pseudopetiolules, the margins subspinose-serrulate, at first white to ferruginous stellate-tomentose on both surfaces, soon glabrescent to glabrous, the lateral nerves prominent beneath; petioles 9–15 cm. long, ferruginous-tomentose; stipules united within the petioles, the apices free, elongate, about 1 cm. long. Inflorescence a panicle to 35 cm. long, tomentose to glabrescent, the main axis stout, the flowers in umbels, the umbels 3 cm. in diameter, many-flowered, the peduncles 3–5 cm. long, stout, the bracts ovate, 1 cm. long, the pedicels 1 cm. long, densely ferruginous-tomentose. Calyx tomentose, 4 mm. long, 5-dentate. Petals 5, 3.5 mm. long, triangular-ovate, tomentose outside. Ovary 2- or 3-celled, the disk elevated, the styles united into a column, 2 mm. long.

YUNNAN: Ma-chang-kai Valley, north of Tengyueh, *Forrest 9671* (AA, ISOTYPE).

The very deep and narrow-based lobes of the leaves easily separate this species from its allies. It is nearest to *B. hispida* Seem.; aside from the leaf-characters, it differs from the latter in that the petals are white-tomentose outside and the inflorescence is not prickly.

5. **Brassaiopsis palmipes** Forrest ex Smith, Notes Bot. Gard. Edinb. **10:** 12. 1917; Hand.-Maz. Symb. Sin. **7:** 694. 1933.

A prickly shrub 3–9 m. tall, with submembranaceous palmately 8–11-lobed leaves, the lobes subspinulose-serrulate, narrowed at the base, forming broadly winged pseudopetiolules, and with pubescent to glabrescent panicles formed by many-flowered umbels. Leaves lobed to 4/5 the length, petiolate, stipulate, the base cordate; lobes 8–11, oblong-elliptic, 10–15 cm. long, 5–7.5 cm. wide, the apex rounded to acute, the base rounded, with pseudopetiolules joined by broad wings, the margins subspinulose-serrulate, glabrous or slightly pubescent above, densely pubescent to glabrescent beneath, the lateral nerves distinct above, prominent beneath; petioles 12–25 cm. long, ferruginous-pubescent at first, soon glabrescent, with few prickles at the apex; stipules united, the apices free, lanceolate. Inflorescence a large panicle, pubescent to glabrescent, the flowers in umbels, the umbels many-flowered, 3–5 cm. in diameter; peduncles 2 cm. long, the pedicels ferruginous-puberulous, 1 cm. long. Calyx 3 mm. long, 5-dentate, the teeth short, acute. Petals 5, pubescent outside, 4 mm. long. Ovary mostly 2- sometimes 3-celled, the styles united into a column. Fruit ovoid, 8 mm. long, 5 mm. broad, the style-column 2 mm. long.

YUNNAN: Shweli Valley, *Forrest 7887* (ISOTYPE, AA); Shangpa, *H. T. Tsai 56575* (AA) (fruit).

A species apparently close to *B. fatsioides* Harms. Its *Trevesia*-like leaves are unique and very distinct.

6. **Brassaiopsis ficifolia** Dunn, Jour. Linn. Soc. Bot. **35:** 500. 1903; Chung, Mem. Sci. Soc. China **1:** 187. 1924.

A very low slightly prickly shrub, 1–1.5 m. tall, with membranaceous palmately 3- or rarely 4–6-lobed leaves, the lobes serrate, and with ferruginous-tomentose

panicles formed by many-flowered umbels. Leaves about 20 cm. across, petiolate, stipulate, the base cordate; lobes ovate, generally 3, rarely 4–6, 10–14 cm. long, 6–9 cm. wide, the apex acuminate, the base narrowed, the margins serrate, glabrous above, glabrous or sparsely stellate-tomentose beneath; petioles glabrous, 8–10 cm. long; stipules short, connate within the petioles, with 2 distinct triangular erect lobes. Inflorescence a panicle, ferruginous-tomentose, the flowers in umbels, the umbels 3 cm. in diameter, many-flowered; peduncles 3.5 cm. long; pedicels 1.2 cm. long. Calyx tomentose, 2 mm. long, the margin entire. Petals 5, 3 mm. long. Stamens 5, the filaments 3 mm. long. Ovary 2-celled, the disk slightly elevated, the styles united into a column, the stigmas 2, slightly divergent. Fruit didymous, globose, 8 mm. across, 2-seeded or by abortion 1-seeded, the disk small, truncate, the style-column 2 mm. long.

YUNNAN: Szemao, *Henry 11650* (isosyntype, AA), *12653* (isosyntype, W), *12653A* (isosyntype, AA, NY), *12653B* (isosyntype, AA, NY, W); Dzung-deui, Champutong, *C. W. Wang 66927* (AA).

The leaves are variable in shape. While most of the leaves are trilobed, there are also a few with 4–6 lobes. The lobes may be broad or narrow, extending from ¼ to ½ the length of the leaves.

7. **Brassaiopsis fatsioides** Harms in Sargent, Pl. Wils. **2**: 556. 1916; Chung, Mem. Sci. Soc. China **1**: 187. 1924.

Brassaiopsis trevesioides W. W. Smith, Notes Bot. Gard. Edinb. **10**: 13. 1917, syn. nov.

A shrub 1–3 m. tall, with membranaceous to chartaceous palmately 7–9-lobed leaves, the lobes minutely serrulate, and with elongated puberulous panicles formed by many-flowered umbels. Leaves petiolate, the base cordate; lobes 7–9, oblanceolate to oblong-oblanceolate, divided to ⅘ the length of the leaf, 16–22 cm. long, 3–8 cm. wide, the apex short-acuminate, the base slightly narrowed, the margins serrulate, sparsely bristly to subglabrous above, slightly ferruginous-tomentose to glabrous beneath, the lateral nerves distinct on both surfaces, the tertiary veins obscure above, distinct beneath; petioles subglabrous, sparsely puberulous near the apex, 30 cm. or more long. Inflorescence in elongated panicles, the main axis puberulous, the flowers in umbels, the umbels many-flowered, 4 cm. in diameter, the peduncles puberulous, 2–3 cm. long, the pedicels subglabrous to puberulous, 0.5–1.5 cm. long. Calyx glabrous to subglabrous, the margin indistinctly dentate. Petals 5, acute, glabrous on both surfaces, 3.5–4 mm. long. Stamens 5. Ovary 2-celled, the disk thick, hemispherical, the styles united into a column. Fruit globose, 5–6 mm. across, 2-seeded, the disk about ⅙ the length of the fruit, the style-column 2 mm. long, the pedicels 1.5 cm. long.

SZECHUAN: Without precise locality; *Wilson 3697* (ISOTYPE, AA); Ma-pien Hsien, *F. T. Wang 23098* (AA); Omei-shan, *Chiao & Fan 538* (AA).

YUNNAN: Chiu-pei Hsien, *H. T. Tsai 51423* (AA); Mong Ka, *H. T. Tsai 56307* (AA); Chen-ka Hsien, *C. W. Wang 72290* (AA), *72452* (AA); Fo-hai Hsien, Hai-lung-tarn, *C. W. Wang 76297* (AA); Shunning, Hila, Wumulung, *T. T. Yü 16666* (AA); Taron-Taru Divide, Lungnan, *T. T. Yü 20009* (AA).

The Yunnan specimens cited above are generally larger plants to 7–8 m. tall; otherwise the characters are the same as in the Szechuan specimens. *Tsai 56307* has leaves with stronger, occasionally doubly serrate, more or less spinose-serrate margins.

A species related to *Brassaiopsis ciliata* Dunn, from which it differs primarily in the absence of prickles on the inflorescence. Both species are apparently closely allied to the Indian *B. mitis* C. B. Clarke. Smith's *B. trevesioides* is here reduced to synonymy on the basis of photographs and fragments of flowers from the type (in AA).

8. **Brassaiopsis tripteris** (Lévl.) Rehder, Jour. Arn. Arb. **15:** 115. 1934.

Heptapleurum tripteris Lévl. Bull. Acad. Géogr. Bot. **34:** 145. 1914; Fl. Kouy-Tchéou 35. 1914; Ill. Pl. Seu-Tchéouen *t. 1.* 1918, in ms.

A very low shrub with digitately compound leaves, the leaflets 3, chartaceous, sessile, obovate-oblong, spinosely serrulate and glabrous, and with a small terminal few-umbellate panicle. Leaves petiolate, stipulate; leaflets 3, sometimes with an additional lobe, about 13 cm. long and 5 cm. wide, the apex acute to acuminate, the base long-attenuate, the margins spinose-serrulate, glabrous on both surfaces, the lateral nerves about 6 on each side, subconspicuous above, prominent beneath; petioles about 11 cm. long, glabrous; stipules united, the apices free, acuminate. Inflorescence a small terminal few-umbellate panicle, ferruginous-tomentose to glabrescent, the umbels many-flowered, about 3.5 cm. in diameter, the peduncles 4.5 cm. long, the bracts 5–7 mm. long, acuminate, the pedicels slender, 1.5 cm. long. Calyx tomentose, 2 mm. long, the margin 5-dentate. Petals 5, ovate, 3 mm. long, glabrous on both surfaces. Ovary 2-celled, the disk elevated; styles united into a column, 2 mm. long.

KWEICHOW: West of Lo-fou, *J. Cavalerie 2566* (HOLOTYPE of *Heptapleurum tripteris* Lévl.; merotype in AA).

9. **Brassaiopsis chengkangensis** Hu, Bull. Fan. Mem. Inst. Biol. Bot. Ser. **10:** 162. 1940.

A tree to 15 m. in height, with digitately compound leaves, the leaflets 3–7, coriaceous, petiolulate, ovate-oblong to lanceolate, remotely mucronate-denticulate, ferruginously bristly, and with ferruginously bristly panicles formed by many-flowered umbels. Leaves petiolate; petioles stout, terete, densely and softly ferruginous-bristly with branching bristles to 3 mm. long when young and finally sparsely stellate-tomentose, to 30 cm. long; leaflets densely ferruginous-bristly when young, at length glabrescent above and sparsely bristly beneath, ovate-oblong to oblong-lanceolate, 15–29 cm. long, 6–13 cm. wide, the apex acuminate, the base rounded, the margins remotely mucronate-denticulate toward the upper part, the lateral nerves about 18 on each side, distinct above, projecting beneath, the tertiary veins slightly impressed above, projecting beneath; petiolules stout, densely ferruginous-bristly, 1.5–2.5 cm. long. Inflorescence racemose-paniculate, to 35 cm. long, the main axis very stout, densely bristly, the flowers in many-flowered umbels, these 3.5 cm. in diameter, the peduncles 2.5–5 cm. long; pedicels to 8 mm. long, ferruginous-bristly, with persistent ligulate bracteoles at the base. Calyx densely ferruginous-bristly, 2.5 mm. long, with 5 linear-lanceolate membranaceous lobes, the margins fimbriate. Petals 5, ovate, 3 mm. long, densely ferruginous-bristly outside. Stamens 5, 2 mm. long. Ovary 2-celled, the disk thick, the styles united into a stout column, 1.2 mm. long.

YUNNAN: Chenkang Hsien, *C. W. Wang 72309* (ISOTYPE, AA); Mong-ka, *H. T. Tsai 56386* (AA); Shunning, Snow Range, *T. T. Yü 16006* (AA).

A species characterized by the dense ferruginous-bristly indumentum.

10. **Brassaiopsis gracilis** Hand.-Maz. Sinensia **3:** 197. 1933.

A shrub about 1 m. tall, with digitately compound leaves, the leaflets 5, membranaceous, petiolulate, ovate- to elliptic-lanceolate, sparsely setose above, and with an axillary, small, ferruginous-tomentose inflorescence formed by few umbels. Branches glabrous, occasionally with a single prickle at the nodes, the prickles straight, conical. Leaves petiolate; petioles slender, glabrous, about 10–15 cm. long; leaflets subsessile to short-petiolulate, sparsely short-setose above, glabrous beneath, 8–18 cm. long, 3–5 cm. wide, the apex long-acuminate, the base attenuate, the lateral ones often oblique, the margins serrate, the lateral nerves about 4–6 on each side, prominent, the tertiary veins obscure; petiolules 0–13 mm. long. Inflorescence in an axillary small raceme formed by few umbels, about 7–8 cm. long, densely ferruginous-tomentose; umbels many-flowered, about 1.5

cm. in diameter, the peduncles about 2 cm. long, the bracts triangular, 3–6 mm. long, submembranaceous, the pedicels 4 mm. long, ferruginous-tomentose. Calyx glabrous, the margin 5-dentate. Petals 5. Stamens 5. Ovary 2-celled, the styles united into a single column.

KWANGSI: Tsin Hung Shan, northern Hin Yen, *R. C. Ching 6850* (ISOTYPE, LU, NY).

The specimens on which Handel-Mazzetti based his description are very young. In general appearance this species suggests some species of *Acanthopanax*. Moreover the pedicels seem to be very slightly articulate. However, the two-celled ovary and the single style-column indicate *Brassaiopsis*. Without fruiting material, it is difficult to ascertain its exact taxonomical position.

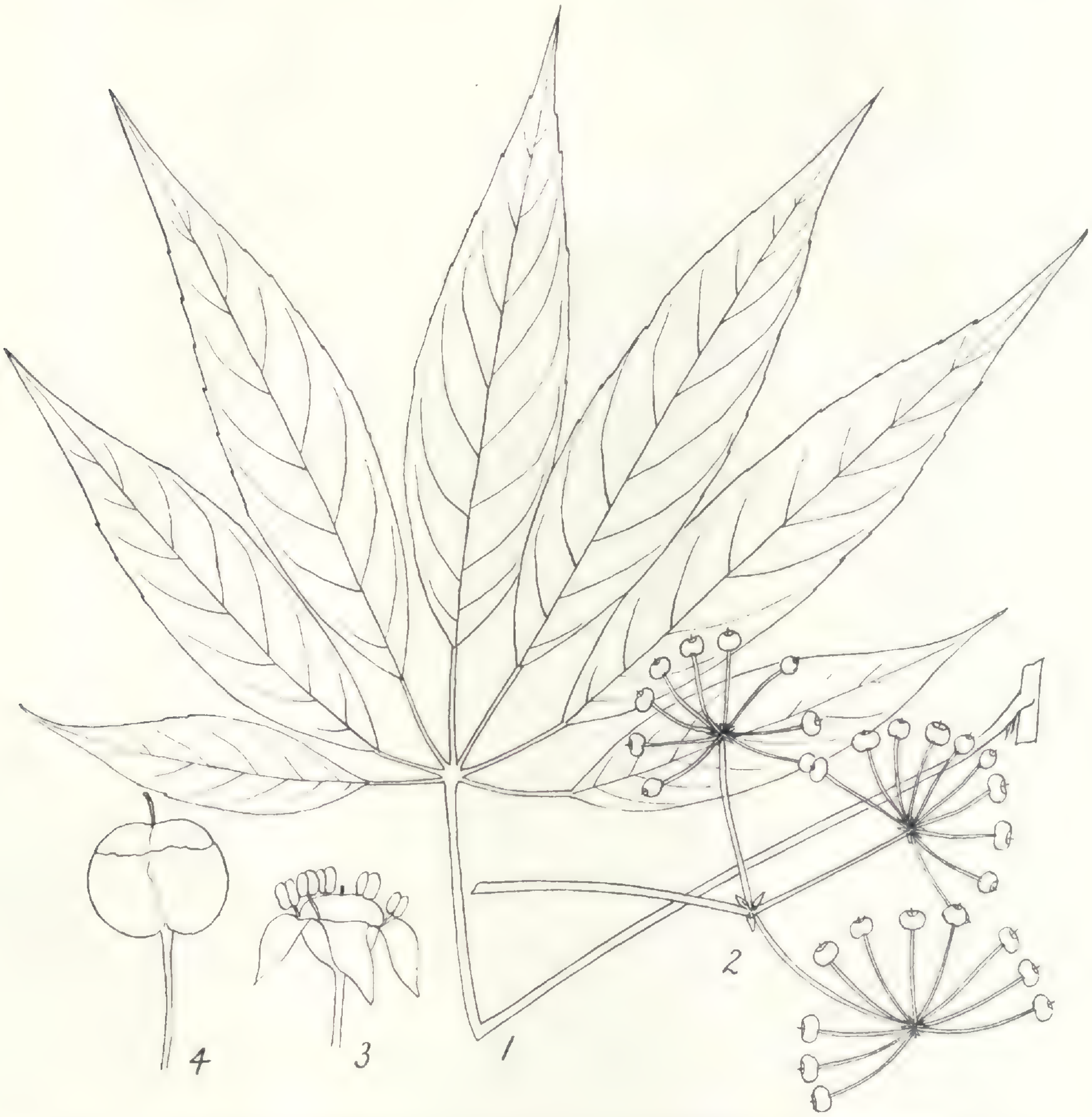


Fig. 9. *Brassaiopsis acuminata; 1.* leaf, × ½; *2.* portion of infructescence, × ½; *3.* flower, × 3; *4.* fruit, × 2.

11. **Brassaiopsis acuminata** sp. nov. Fig. 9.

Frutex circa 2–3 m. altus. Foliis digitatim compositis petiolatis; petiolis gracilibus teretibus subferrugineo-tomentosis, ad 30 cm. longis; foliolis 7–9, supra glabris, subtus sparse ferrugineo-tomentosis, chartaceis, ovato-lanceolatis, 9–18 cm. longis, 2.5–4.5 cm. latis, apice longe acuminatis, basi attenuatis, margine

subintegris vel ad partem superam remote serrulatis, nervis lateralibus utrinsecus circa 8, supra manifestis, subtus prominentibus, venis tertiariis utrinque prominentibus; petiolulis gracilibus subferrugineo-tomentosis 1–4.5 cm. longis. Inflorescentiis e paniculis gracilibus laxis, floribus umbellatis, umbellis circa 10-floris 4 cm. diametro; pedunculis subferrugineo-tomentosis 4 cm. longis; pedicellis gracilibus subferrugineo-tomentosis 1.5 cm. longis. Calycis tubo lato ferrugineo-tomentoso obscure 5-dentato. Petalis 5 ovatis tenuibus, extus parcius tomentosis, intus glabris, 5 mm. longis. Staminibus 5, filamentis 3 mm. longis. Ovario 2-loculari, disco crasso hemisphaerico, stylis in columnam circa 1.5 mm. longam connatis. Fructu didymo-globoso circa 8 mm. magno, 2-spermo, disco ⅓ fructus longitudinis aequante, stylo 3 mm. longo, stigmatibus capitatis, pedicellis ad 3 cm. longis.

YUNNAN: Kiukiang Valley, Taron, Sronwang, *T. T. Yü 20158* (TYPE, AA), Sept. 7, 1938; Kiukiang Valley, Srowtu, *T. T. Yü 20159* (AA) (fruit).

KWEICHOW: Tushan, *Y. Tsiang 7046* (NY).

A species related to *Brassaiopsis glomerulata* (Bl.) Regel, differing in the small, narrow, ovate-lanceolate, long-acuminate leaflets, the loose slender panicles, and the long pedicels.

12. **Brassaiopsis shweliensis** W. W. Smith, Notes Bot. Gard. Edinb. **10**: 13. 1917.

This species, of which I have seen no material, was described from Yunnan by W. W. Smith. Only a photograph of the type is available (in AA). W. W. Smith's original description is as follows:

"Species affinis *B. aculeatae* Seem. a qua foliolis coriaceis facile distinguenda est.

"Frutex circ. 7.5 m. altus ramis crassissimis hic illic aculeatis. Folia ampla petiolo ad 40 cm. longo ferrugineo-tomentoso cito glabrescente praedita digitata; petioluli circ. 1 cm. longi ferrugineo-tomentelli mox subglabri; foliola 6–7, ad 24 cm. longa, ad 7 cm. lata, apice plus minusve longe acuminata, basi anguste cuneata, margine (dimidio superiore) indurato-serrata, coriacea, primum tomento stellato ferrugineo vel albido conspersa, tadem glabra; costa nervique 12–15 paria subtus eminentes reticulo nervulorum subconspicuo. Inflorescentia ampla circ. 30 cm. longa; rachis crassa primum tomentella mox glabrescens rugosissima unde oriuntur fere recto angulo pedunculi numerosi circ. 2.5 cm. longi-crassi umbellam multiflorum solitariam gerentes, bracteis circ. 1.5 cm. longis coriaceis persistentibus cymbiformibus incurvis apice indurato-acutatis praediti; pedicelli circ. 1 cm. longi ferrugineo-tomentelli. Calycis dentes circ. 7 mm. longi acuti; petala non visa; fructus globosus circa 7 mm. diametro bilocularis, tomento tenui crustaceo tadem deciduo indutus, disco hemisphaerico stylo simplici 2 mm. longo.

"'China:—Shweli Valley, Yunnan. Lat. 25° N. Alt. 6000 ft. Shrub of 25 ft. In fruit. Open situations in thickets. July 1912.' G. Forrest. No. 8702."

13. **Brassaiopsis glomerulata** (Bl.) Regel, Gartenfl. **12**: 275. *t. 411.* 1863; Merr. Lingnan Sci. Jour. **5**: 140. 1927; Hand.-Maz. Symb. Sin. **7**: 694. 1933; Chun, Sunyatsenia **4**: 248. 1940.

Aralia glomerulata Bl. Bijdr. 872. 1826.

Hedera floribunda Wall. List, no. 4912A. 1832, *nomen nudum;* G. Don, Gen. Syst. **3**: 394. 1834; Walp. Rep. **2**: 432. 1843.

Brassaiopsis speciosa Decne. & Planch. Rev. Hort. IV. **3**: 106. 1854; Seem. Jour. Bot. **2**: 262. 1864, Revis. Heder. 19. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 737. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 425. 1911.

Macropanax glomerulatum Miq. Fl. Ind. Bat. **1**(1): 764. 1855.

Brassaiopsis floribunda Seem. Jour. Bot. **2**: 262. 1864, Revis. Heder. 19. 1868.

A shrub or small tree, 3–10 m. tall, with digitately compound leaves, the leaflets 5–9, chartaceous, petiolulate, elliptic-oblong, entire or distantly serrulate,

with ferruginous-tomentose to glabrescent panicles, the flowers in umbels, racemosely arranged on the branches. Upper part of the branches prickly, reddish ferruginous-tomentose on young branches. Leaves petiolate; petioles slender, terete, glabrous, 30–50 cm. long; leaflets 15–25 cm. long, 6–10 cm. wide, the apex acuminate, the base generally cuneate, rarely obtuse to rounded, the margins entire or distantly serrulate, scattered-reddish-ferruginous-stellate-tomentose when young, soon glabrous above, glabrescent or nearly so beneath, the lateral nerves about 7–9 on each side, the tertiary nerves slightly conspicuous; petiolules long, slender, glabrous, 2–9 cm. long. Inflorescence in large panicles, 30 cm. or more long, reddish-ferruginous-tomentose when young, the rachis soon glabrescent, the flowers in umbels, these racemosely arranged on the branches, the bracts oblong or lanceolate, 5 mm. long, persistent, the peduncles 2–5 cm. long, with a bracteole at the base and 1 or 2 inserted near the middle; pedicels 1–1.2 cm. long, rising from a dense cluster of bracteoles 1–2 mm. long, reddish-ferruginous-tomentose, and persistent. Calyx-tube short, tomentose outside, 5-dentate. Petals 5, oblong, glabrous on both surfaces, 3 mm. long. Stamens 5, the filaments shorter than the petals. Ovary 2-celled, the disk convex, the styles united into a short conical column. Fruit didymo-globose or semiglobose, about 6–10 mm. across, 2-seeded, the disk convex, elevated, about ¼ to ⅓ the length of the fruit, the style-column 1–2 mm. long, the pedicels 1.2–1.5 cm. long.

YUNNAN: Mengtze, *Henry 9654A* (AA), *11492* (AA); Szemao, *Henry 13456* (AA, NY), *13621* (NY); Ping-pien Hsien, *H. T. Tsai 62236* (AA); Che-li Hsien, You-louh Shan, *C. W. Wang 78126* (AA); Chiukiang, west of Champutong, *C. W. Wang 67539* (AA); Fo-hai, *C. W. Wang 74398* (AA), *74909* (AA); Che-li Hsien, Mann-bang, Da-meng-lung, *C. W. Wang 77446* (AA); Che-li Hsien, Ban-chiou-chian, *C. W. Wang 79773* (AA); Salwin Valley, northeast of Champutong, *T. T. Yü 19162* (AA).

KWANGSI: Shang-sze District, Shap Man Taai Shan, Tang Lung Village, *W. T. Tsang 24160* (AA, NY); Yao Shan, *C. W. Wang 39913* (AA).

HAINAN: Southern slope of Five Finger Mts., *F. A. McClure 8878 = CCC9434* (NY); Hung Mo Tung, *Tsang & Fung 640 = LU18174* (NY); Dung Ka, *N. K. Chun & C. L. Tso 43935* (AA, NY, W); Chang-kang District, Ngo-ko Shan, near Tsat Cha Village, *S. K. Lau 1888* (AA, NY); no precise locality, *C. W. Wang 33684* (AA, NY, W), *34616* (NY), *35441* (NY); Yaichow, *H. Y. Liang 62558* (AA, NY), *62613* (NY); Kan-en District, Chim Fung Ling, near Sam Mo Watt Village, *S. K. Lau 3869* (AA), *4998* (AA); Lokwei, *F. C. How 72312* (AA); Po-ting, *F. C. How 73107* (AA), *73522* (AA); Bak-sa, *S. K. Lau 25479* (AA).

ADDITIONAL DISTRIBUTION: India to Indo-China and Java.

This species is very variable in its leaves, tomentum, and inflorescence. The differences, although quite great in some cases, are gradual and not constant enough for specific separation. The following varieties are recognized.

13a. **Brassaiopsis glomerulata** var. **brevipedicellata** var. nov.

A typo foliolis longioribus, apice rotundato et abrupte apiculato, pedicellis fructigeris multo brevioribus separatur.

A shrub 3–7 m. in height. Leaves 5–9-foliolate, the leaflets ovate-oblong, 14–18 cm. long, 4–6.5 cm. wide, the apex shortly and abruptly acuminate, the base broad-cuneate to rounded, the margins entire or nearly so, glabrous above, scattered ferruginous-tomentose beneath. Pedicels of fruit 5–7 mm. long.

YUNNAN: Jenn-yeh Hsien, Meng-him, *C. W. Wang 80107* (AA); Kiukiang Valley, south of Srowtu, *T. T. Yü 20156* (TYPE, AA), Nov. 21, 1938.

Differs from the species in the longer leaflets, with rounded short abruptly acuminate apex, and the much shorter pedicels in the fruit. The Chinese plant resembles var. *subovata* C. B. Clarke of India, so far as I can determine from the published description, but has smaller leaves. I cannot compare the length of the pedicels of Clarke's variety with those of mine, because, unfortunately, Clarke does not describe them.

13b. **Brassaiopsis glomerulata** var. **coriacea** (W. W. Smith) comb. nov.

Brassaiopsis coriacea W. W. Smith, Notes Bot. Gard. Edinb. **10**: 11. 1917.

A shrub 4–10 m. tall, the leaflets 7–9, coriaceous, elliptic, to 22 cm. long and 9 cm. broad, the apex short-acuminate, the base broad-cuneate to rounded, the margins entire or nearly so. Inflorescence to 60 cm. long, generally corymbose-paniculate, ferruginous-tomentose to glabrous. Pedicels of fruit about 1 cm. long.

YUNNAN: Shang-pa Hsien, *H. T. Tsai 54759* (AA), *59086* (AA); Ping-pien Hsien, *H. T. Tsai 55495* (AA), *60332* (AA), *61147* (AA); Lan-tsang Hsien, *C. W. Wang 76489A* (AA).

Differs from the species in the more coriaceous leaflets and the generally corymbose-paniculate inflorescence.

13c. **Brassaiopsis glomerulata** var. **longipedicellata** var. nov.

A typo inflorescentiis corymboso-paniculatis et fructibus longe pedicellatis differt.

A shrub 2–7 m. tall. Leaflets 5–7, subchartaceous, ovate-elliptic, 8–18 cm. long, 3–6.5 cm. wide, the apex acuminate, the base obtuse, the margins finely serrulate to entire, red-ferruginous-tomentose on both surfaces when young, soon glabrous; petiolules 1–3 cm. long. Inflorescence corymbose-paniculate, red-ferruginous-tomentose at first, soon glabrescent; pedicels of fruit 2.5 cm. long.

KWEICHOW: Chengfeng, Wong-moo, *S. W. Teng 90995* (AA).

KWANGSI: Tsin Hun Shan, north of Hin Yen, *R. C. Ching 6793* (LU, NY); Ling Wun District, *S. K. Lau 28695* (TYPE, AA), July 18, 1937.

Differs from the species in the corymbose-paniculate inflorescence and the long pedicels.

Doubtful and Excluded Species

1. **Brassaiopsis Hookeri** C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 737. 1879; Hand.-Maz. Symb. Sin. **7**: 694. 1933.

An Indian species doubtfully recorded by Handel-Mazzetti from Yunnan.

2. **Brassaiopsis palmata** (Roxb.) Kurz, Jour. As. Soc. Bengal **39**(2): 77. 1870, For. Fl. Brit. Burma **1**: 537. 1877; Chung, Mem. Sci. Soc. China **1**: 187. 1924; Hand.-Maz. Symb. Sin. **7**: 693. 1933.

Panax palmata Roxb. Hort. Bengal. 21. 1814, Fl. Ind. ed. 2. **2**: 74. 1832.

Recorded by Chung and Handel-Mazzetti from Yunnan. Chinese specimens in the herbaria seen by me bearing the label of *Brassaiopsis palmata* (Roxb.) Kurz are found to represent *B. Hainla* Seem. This Indian species therefore should probably be excluded from the Chinese flora.

3. **Brassaiopsis papayoides** Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **61**: 120. 1925, Symb. Sin. **7**: 693. 1933.

Handel-Mazzetti described *B. papayoides* from immature specimens from Yunnan and Kweichow. He does not mention the number of cells in the ovary but states "corolla juvenilis crassa conum 10-sulcatum formans," which indicates that the plant is probably not a *Brassaiopsis*. On the basis of a photograph of the type (in AA) and of the original description, the plant seems to agree well with the specimens from Kweichow cited under *Trevesia palmata* Vis. A final disposition can not be made until the type is examined.

IX. MACROPANAX Miquel

Macropanax Miq. Fl. Ind. Bat. **1**(1): 763. 1855.

Small unarmed trees. Leaves digitately compound, the leaflets entire or serrate; stipules shortly connate within the petiole or wanting. Flowers polygamous,

in umbels, the umbels arranged in large branching panicles, the bracts small, deciduous, the pedicels articulate under the flower. Calyx-margin 5-dentate. Petals 5, valvate. Stamens 5, the anthers oval. Ovary 2-, seldom 3-celled, striate or ribbed; seeds compressed; endosperm ruminate.

Two or three species from India to Java.

Type species: *Macropanax oreophilus* Miq.

KEY TO SPECIES AND VARIETY

A. Leaflets usually denticulate-serrate, the panicle-branches spreading, ferruginous-pubescent. 1. *M. oreophilus.*

AA. Leaflets entire or nearly so, the panicle-branches ascending, glabrous.

B. Umbels many, racemosely arranged on the panicle-branches .....2. *M. undulatus.*

BB. Umbels single, terminating each panicle-branch .....2a. *M. undulatus* var. *simplex.*

1. **Macropanax oreophilus** Miq. Fl. Ind. Bat. **1**(1): 764. 1855; Seem. Jour. Bot. **2**: 294. 1864, Revis. Heder. 20. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 738. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 466. 1911; Viguier in Lecomte, Fl. Gén. Indo-Chine **2**: 1164. *f. 137, no. 7, 8, f. 138, no. 1, 2.* 1923; Chung, Mem. Sci. Soc. China **1**: 187. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **17**: 275, 326. 1930.

Macropanax floribundus Miq. Fl. Ind. Bat. **1**(1): 764. 1855.

A tree about 10 m. tall, with 5–7-foliolate leaves, the leaflets oblong and elliptic to lanceolate, denticulate-serrate or crenulate, and with ferruginous-stellate-tomentose compound panicles with spreading branches. Leaves petiolate, the petioles terete, glabrous, 10–15 cm. long; leaflets chartaceous, petiolulate, 10–15 cm. long, 3–4 cm. wide, the apex acuminate, the base rounded to acute, the margins denticulate-serrate or crenulate, glabrous on both surfaces, the lateral nerves 6–10 on each side, distinct on both surfaces, the tertiary veins conspicuous above, inconspicuous beneath; petiolules 1–2 cm. long. Inflorescence a terminal compound panicle to 30 cm. long, ferruginous-stellate-tomentose, the branches about 10 cm. long, spreading, the bracts inconspicuous or caducous. Calyx glabrous, the margin inconspicuously dentate. Petals 5, glabrous on both surfaces, 1.5 mm. long. Stamens 5, the filaments about the same length as the petals. Ovary 2-celled, the styles united into a column, the disk elevated, hemispherical. Fruit ovoid, slightly ribbed, 5 mm. long, the disk large, conical, often wider than the top of the fruit, the style-column persistent, 2–3 mm. long.

YUNNAN: Szemao, *Henry 13082* (NY), *13083* (AA, W), *13083A* (AA, NY); no precise locality, *Forrest 8267* (AA), *8796* (AA), *11822* (AA); Shweli-Salween divide, *Forrest 17690* (AA), *18289* (AA); Lung-ling Hsien, *H. T. Tsai 54588* (AA); Fo-hai, *C. W. Wang 77261* (AA); Meng-soong, Dar-meng-lung, Che-li Hsien, *C. W. Wang 78358A* (AA).

HAINAN: No precise locality, *H. Y. Liang 64212* (AA, NY, W) (juvenile), *C. W. Wang 36325* (AA, NY) (juvenile).

ADDITIONAL DISTRIBUTION: India to Malaya.

2. **Macropanax undulatus** (Wall.) Seem. Jour. Bot. **2**: 294. 1864, Revis. Heder. 20. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 738. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 466. 1911; Chung, Mem. Sci. Soc. China **1**: 187. 1924; Merr. Lingnan Sci. Jour. **11**: 49. 1932.

Hedera undulata Wall. List no. 4916A. 1832, *nomen nudum;* G. Don, Gen. Syst. **3**: 394. 1834; Walp. Rep. **2**: 432. 1843.

Macropanax concinnus Miq. Ann. Mus. Bot. Lugd.-Bat. **1**: 220. 1864; Viguier in Lecomte, Fl. Gén. Indo-Chine **2**: 1165. 1923.

A tree to 15 m. tall, with 3–5-foliolate leaves, the leaflets elliptic-lanceolate, entire or rarely minutely denticulate, and with glabrous, terminal, compound panicles, the branches ascending. Leaves petiolate; petioles slender, terete, glabrous, 10–15 cm. long; leaflets chartaceous, petiolulate, 10–18 cm. long, 3.5–5.5 cm. wide, the apex acuminate, the base acute to rounded, the margins entire, rarely minutely denticulate, glabrous on both surfaces, the lateral nerves about 6

on each side, conspicuous beneath, subconspicuous above, the tertiary nerves inconspicuous; petiolules 1.5–3 mm. long, the lateral ones very short. Inflorescence a terminal compound panicle, 15–30 cm. long, glabrous, the branches 10–12 cm. long, ascending, the compound bracts triangular, 3 mm. long, caducous, the flowers in umbels, the peduncles 0.5–1 cm. or more long, the pedicels 3–5 mm. long, glabrous, articulate under the flower, the bracteoles inconspicuous or caducous. Calyx glabrous, inconspicuously dentate. Petals 5, glabrous on both surfaces, 3 mm. long. Stamens 5, the filaments about the same length as the petals. Ovary 2-celled; styles united into a column; disk elevated. Fruit ovoid, ribbed, 5 mm. long, the disk conical, prominent, the style-column persistent, 2–3 mm. long.

YUNNAN: Between Sadon and the Yunnan Chinese border at Changtifang and Kambaiti, *J. F. Rock 7433* (AA); between Tengyueh and the Burmese border, en route to Sadon, *J. F. Rock 7384* (AA, W); Lan-Tsang Hsien, *C. W. Wang 76450* (AA); Mong-ka, *H. T. Tsai 56823* (AA); Kiukiang Valley, Taron, Sronwang, *T. T. Yü 20163* (AA); Kiukiang Valley, Muhionga, *T. T. Yü 20487* (AA).

KWEICHOW: Tuhshang, *Y. Tsiang 7044* (AA, NY, W).

KWANGSI: Nor Yut, Taiching Shan, *S. P. Ko 55386* (AA).

HAINAN: Hung Mo Shan and vicinity, *Tsang, Tang and Fung 146 = LU17677* (AA, NY, W), *303 = LU17837* (AA, NY, W); Ling-shui District, Fen Maan Ts'uen and vicinity, *McClure 20125* (AA, NY, W).

ADDITIONAL DISTRIBUTION: India to Burma and Indo-China.

This species can be distinguished from *Macropanax oreophilus* Miq. primarily by its leaflets, which are entire or nearly so, and its glabrous inflorescences with the branches ascending instead of spreading.

2a. **Macropanax undulatus** var. **simplex** var. nov.

A typo inflorescentiis racemose ramosis, ramulis simplicibus, umbella terminali differt.

YUNNAN: Szemao, *Henry 11764* (AA, NY), *12402* (AA), *12644* (AA, W), *12644B* (AA, NY), *12644C* (AA, W), *13448* (AA); between Muang and Keng Hung, *J. F. Rock 2472* (AA, W); Monka, *H. T. Tsai 56855* (AA); Fo-hai, *C. W. Wang 74850* (AA), *76149* (AA), *77147* (AA); Che-li Hsien, Sheau-meng-yeang, *C. W. Wang 75889* (TYPE, AA), Sept. 1936; Che-li Hsien, Maan-bang, Dah-meng-lung, *C. W. Wang 77469* (AA); Che-li Hsien, Dah-meng-lung, *C. W. Wang 77717* (AA), *77938* (AA); Che-li Hsien, You-louh-shan, *C. W. Wang 78130* (AA); Che-li Hsien, Jahlesi, *C. W. Wang 79174* (AA); Che-li Hsien, Kuen-ger, *C. W. Wang 79305* (AA); Che-li Hsien, Ban-chion-chian, *C. W. Wang 79697* (AA); Jenn-yeh Hsien, Lung-huk, *C. W. Wang 80155* (AA); Luh-shuen Hsien, Maan-tsang, Sheau-meng-yeang, *C. W. Wang 81102* (AA).

Differs from the species in the racemosely branched inflorescence, its branches simple with a single terminal umbel.

X. MERRILLIOPANAX Li

Merrilliopanax gen. nov.

Frutex sempervirens inermis, glaber vel mox glabrescens. Foliis simplicibus, petiolorum basi valde dilata plerumque in stipulas abeunte. Inflorescentiis terminalibus et in axillis superioribus, paniculatis, laxis, erectis, apertis. Floribus umbellatis, umbellis paucis in ramis primariis plerumque racemose dispositis, longe pedunculatis; pedicellis exarticulatis. Calycis limbo minute 5-dentato. Petalis 5 aestivatione valvata. Staminibus 5. Ovario 2-loculari, loculis 1-ovulatis, stylis 2 liberis vel basi subconnatis. Drupa subglobosa 2-loculari. Albumine aequabili.

Distribution: Northeastern India and Yunnan, China.

Type species: *Dendropanax Listeri* King.

This genus is near *Dendropanax* and *Nothopanax*. It resembles the former in its simple leaves and inarticulate pedicels, but can be readily distinguished by the paniculate inflorescences, the 2-celled ovaries, and the 2 distinct styles. It is evidently closer to *Nothopanax* than to *Dendropanax*, in both of which genera the type species has been placed. However, the uniformly simple leaves and the inarticulate pedicels clearly separate it from *Nothopanax*.

The genus is named in honor of Prof. E. D. Merrill, Administrator of Botanical Collections and Director of the Arnold Arboretum, Harvard University, in appreciation of his extensive work on the flora of China and assistance freely granted to numerous Chinese botanists and botanical institutions.

Fig. 10. *Merrilliopanax Listeri;* *1.* branchlet with infructescence, × ⅓; *2.* flower, with 2 petals removed, × 6; *3.* fruit, × 4; *4.* diagrammatic cross-section of fruit, × 4.

KEY TO SPECIES

A. Leaves elliptic-lanceolate, subentire or denticulate, glabrous on both surfaces; pedicels 6–13 mm. long ..... 1. *M. Listeri.*

AA. Leaves ovate, mostly shallowly 2–3-lobed, with scattered stellate-tomentose hairs beneath; pedicels 3–4 mm. long ..... *2. M. chinensis.*

1. **Merrilliopanax Listeri** (King) comb. nov. Fig. 10.

Dendropanax Listeri King, Jour. As. Soc. Bengal **67**(*2*): 294. 1898, Ann. Bot. Gard. Calcutta **9**: *t. 55.* 1901; Merr. Brittonia **4**: 133. 1941.

Nothopanax membranifolius W. W. Smith, Notes Bot. Gard. Edinb. **10**: 53. 1917, **17**: 114, 159, 256, 278, 309, 314. 1929–30; Nakai, Jour. Jap. Bot. **15**: 10. 1939.

Gilibertia myriantha Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **60**: 184. 1923.

Gilibertia Listeri Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **60**: 185. 1923.

Gilibertia membranifolia Hand.-Maz. Symb. Sin. **7**: 621. 1933, Oesterr. Bot. Zeitschr. **88**: 305. 1939.

A shrub 2–7 m. tall, the branches slender, glabrous to brownish, glabrescent. Leaves simple, long-petiolate, stipulate, membranaceous to subchartaceous, glabrous on both surfaces, elliptic to elliptic-lanceolate, 8–20 cm. long, 3–8 cm. wide, the apex subabruptly caudate-acuminate (acumen to 3 cm. long, straight or curved), the base broadly acute to more or less rounded, strongly 3-nerved, the margins subentire or denticulate, dark green and dull above, pale olivaceous green beneath, the lateral nerves 3–6 on each side, the tertiary veins subconspicuous on both surfaces; petioles slender, glabrous, 5–15 cm. long, dilate at base with the stipules. Inflorescence a terminal panicle 6–15 cm. long, the branches glabrous to sparsely minutely stellate-tomentose, the flowers in racemosely arranged umbels, these 4–12-flowered, the peduncles 0.5–3 cm. long, the pedicels 6–13 mm. long. Calyx 2 mm. long, sparsely stellate-tomentose, the margin minutely 5-dentate. Petals 5, triangular, 1.5–2 mm. long, glabrous on both surfaces. Stamens 5, the filaments as long as the petals. Ovary 2-celled, the styles 2, free or slightly connate at the base. Fruit subglobose, 4–5 mm. across, the disk small, 2 mm. across, the styles 2, divergent.

YUNNAN: Tengyueh, *Forrest 7704* (isoparatype of *Nothopanax membranifolius* W. W. Smith, AA), *8086* (isoparatype of *N. membranifolius* W. W. Smith, AA); Shweli-Salween divide, *Forrest 18077* (AA); no precise locality, *Forrest 24635* (W); Lu-djiang, Salween, *Handel-Mazzetti 8303* (isotype of *Gilibertia myriantha* Hand.-Maz., AA); West of Mekong, Salween watershed, *J. F. Rock 7016* (AA, NY, W); Champutong, Salween Valley, *J. F. Rock 10244* (AA, W); Shangpa Hsien, *H. T. Tsai 54353* (AA), *54386* (AA), *54950* (AA), *56557* (AA), *56583A* (AA), *58864* (AA); Der-la, Champutong, *C. W. Wang 66896* (AA); Dzung Duei, Champutong, *C. W. Wang 66979* (AA); Lung-pa-la, Champutong, *C. W. Wang 67053* (AA); Chiukiang, west of Champutong, *C. W. Wang 87084* (AA); Salween Valley, southeast of Champutong, *T. T. Yü 19136* (AA); Kiukiang Valley, Taron, *T. T. Yü 19476* (AA); Bucahwang, *T. T. Yü 20133* (AA); Mekong-Salween Divide, Londgrela, *T. T. Yü 23129* (AA).

ADDITIONAL DISTRIBUTION: Northeastern India.

This species was originally described and later redescribed and illustrated by King as *Dendropanax Listeri* from Assam, India. King's excellent illustration reveals the same characters as the Chinese plants. While most of the Chinese specimens examined by me have relatively somewhat narrower leaves than those depicted by King, and in some specimens the panicles are shorter than in the Assam plant, I feel confident that our material is referable to his species. In some of the Yunnan material with larger leaves, these very closely approximate those shown in King's plate. King's type was a fruiting specimen, the umbels described and depicted as having four or five fruits in each. This is true of most of the Chinese material, but in some specimens I have observed as many as seven to nine fruits. In flowering material there may occasionally be as many as twelve flowers in an umbel, but clearly many of these do not develop fruits.

Handel-Mazzetti described *Gilibertia myriantha* not realizing that *Nothapanax membranifolius* W. W. Smith represented the same species. Subsequently he noted the identity of the two, transferred Smith's species to *Gilibertia* and placed his *G. myriantha* as a synonym. Nakai, in his treatment of the Asiatic species of *Dendropanax* (as *Textoria*) (Jour. Jap. Bot. **15**: 1–18. 1939), notes that "*Nothopanax membranifolius* W. W. Smith . . . has umbels arranged in panicles, two divaricate styles, and small fruits (about 4 mm. in diameter), and cannot be classed under *Gilibertia* as Handel-Mazzetti did." Merrill has also noted the differences between this species and *Nothopanax* as well as *Dendropanax* and has added notes to various herbarium specimens. The differences, judging from the characters currently used for differentiating genera in Araliaceae, impress me as sufficiently great to warrant the erection of a new genus for this species.

2. **Merrilliopanax chinensis** sp. nov. Fig. 11.

Frutex erectus, ramulis pubescentibus. Foliis simplicibus longe petiolatis chartaceis, supra glabris, subtus parce stellato-tomentosis vel glabrescentibus, ovatis vel leviter 2–3-lobatis, 6–11 cm. longis, 4–9.5 cm. latis, apice acutis, basi late acutis, valde 3-nervatis, interdum 5-nervatis, 2 exterioribus haud prominulis, margine integris, lobis ¼ longitudinis foliorum, aequalibus, nervis lateralibus utrinsecus 4–5, nervis lateralibus et venis tertiariis utrinque elevatis conspicuis; petiolis gracilibus teretibus glabris, 5–13 cm. longis. Floribus ignotis. Inflorescentiis fructigeris terminalibus paniculatis, circa 12 cm. longis, sparse minute stellato-tomentosis, fructibus umbellatis, umbellis racemosis fructus paucos gerentibus, pedunculis 1.5–3 cm. longis, pedicellis 3–4 mm. longis. Fructu (immaturo) subgloboso 3–4 mm. diametro, disco minimo 1.5–2 mm. crasso, stylis 2 divaricatis, seminibus 2.

Fig. 11. *Merrilliopanax chinensis;* *1.* branchlet with infructescence, × ⅓; *2.* fruit, × 3; *3.* diagrammatic cross-section of fruit, × 3.

YUNNAN: Kiukiang Valley, Taron, Timiton, *T. T. Yü 20174* (TYPE, AA), Sept. 7, 1938.

This species differs from *M. Listeri* (King) Li in its leaves being thicker, mostly 2–3-lobed, scattered stellate-tomentose beneath, the margins not toothed, and in its shorter pedicels.

XI. NOTHOPANAX Miquel

Nothopanax Miq. Fl. Ind. Bat. 1(1): 765. 1855.

Evergreen unarmed shrubs or trees, glabrous or nearly so. Leaves digitately compound or simple and often lobed, exstipulate or with small appendages at base. Flowers in umbels, the umbels solitary, racemose, or paniculate; pedicels distinctly articulate or only very weakly so. Calyx-margin nearly entire or

5-dentate. Petals 5, valvate. Stamens 5, the anthers oval or oblong. Ovary 2- or rarely 3–4-locular. Styles 2–4, distinct or connate at base. Fruit flattened, rarely subglobose; seeds laterally compressed; endosperm uniform.

About 15 species, chiefly in Australia, a few in China.

Type species: *Nothopanax fruticosus* (Linn.) Miq. (*Panax fruticosus* Linn.).

In addition to the species enumerated below, the Indo-Chinese *Nothopanax fruticosus* (Linn.) Miq. is mentioned by Loureiro as being also cultivated in China (as *Panax fruticosus* Linn., Lour. Fl. Cochinch. 656. 1790, ed. Willd. 806. 1793). The only specimen that has come to my notice is a sterile one (Kwangtung: Canton, *W. Y. Chun 6952* [NY]) from a cultivated specimen. The species is widely distributed in cultivation in the tropics of both hemispheres, especially in Indo-Malaysia and Polynesia.

Key to Species

A. Leaves simple or 3-lobed or 2–5-foliolate; fruit flattened, the two styles connate at the base and diverging at their tips in fruit.
  B. Leaves generally simple or 3-lobed, rarely 3-foliolate; leaflets when present sessile, 2.5 cm. or more broad ..... 1. *N. Davidii.*
  BB. Leaves generally 2–5-foliolate, rarely simple; leaflets when present sessile to short-petiolulate, 1–2.5 cm. broad ..... 2. *N. Delavayi.*
AA. Leaves all 3–7-foliolate; fruit ovoid; styles united into a column in fruit, bifid at their tips ..... 3. *N. Rosthornii.*

1. **Nothopanax Davidii** (Franch.) Harms ex Diels, Bot. Jahrb. **29**: 488. 1900; Harms & Rehder in Sargent, Pl. Wils. **2**: 556. 1916; Chung, Mem. Sci. Soc. China **1**: 187. 1924; Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **61**: 121. 1924.

Panax Davidii Franch. Nouv. Arch. Mus. Paris II. **8**: 248. (1885) 1886, Pl. David. **2**: 66. 1888, Jour. de Bot. **10**: 306. 1896.

Acanthopanax diversifolius Hemsl. Jour. Linn. Soc. Bot. **23**: 340. 1888; Lévl. Cat. Pl. Yun-Nan 11. 1915.

Nothopanax diversifolius Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 48. 1894.

Acanthopanax Davidii Viguier, Ann. Sci. Nat. IX. Bot. **4**: 41. 1906.

Nothopanax Bockii Harms ex Diels, Bot. Jahrb. **29**: 488. 1900; Chung, Mem. Sci. Soc. China **1**: 187. 1924.

Acanthopanax Bockii Viguier, Ann. Sci. Nat. IX. Bot. **4**: 41. 1906.

Nothopanax latifolius Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **61**: 121. 1924, Symb. Sin. **7**: 695. 1933, syn. nov.

A glabrous shrub or tree, to 6 m. tall, with simple or trilobed or 3-foliolate leaves, and flowers in paniculate umbels. Leaves coriaceous, petiolate, exstipulate, glabrous, green above, pale beneath, generally simple, oblong-ovate to oblong-lanceolate, 6–15 cm. long, 2.5–6 cm. wide, the apex long-acuminate, the base rounded or broad-cuneate and 3-nerved, the margins remotely serrulate, sometimes deeply 3-lobed to 3-parted or 3-foliolate, with sessile, narrow, lanceolate leaflets, the lateral nerves about 6–8 on each side, subconspicuous above, obscure beneath; petioles slender, 5–20 cm. long. Inflorescence a terminal panicle, to 18 cm. long, glabrous, the flowers in umbels, racemosely arranged on the inflorescence, the lower branches sometimes compound, the umbels 12–15-flowered, about 2.5 cm. in diameter, the peduncles 2 cm. long, the pedicels about 7 mm. long, articulate under the flower. Calyx-margin minutely 5-dentate. Petals 5, triangular-ovate, 1.5 mm. long. Stamens 5, the filaments as long as the petals. Ovary 2-celled, the disk slightly elevated, the styles 2, connate below into a column above the middle, diverging above. Fruit flattened, 5–6 mm. across, black, the calyx-teeth usually persistent, the styles 1.5–2 mm. long, reflexed at the tip.

HUPEH: No precise locality, *Henry 2534* (NY), *2969* (AA, G), *4337* (G, NY, W), *4337A* (NY), *6608A* (G, W), *6608B* (AA), *7498* (G); Hsing-shan Hsien, *Wilson 332* (AA), *614* (AA, W), *1956* (AA, W), *1957* (AA, G, W), *1958* (AA, W), *1959* (AA, G, NY, W), *1960* (AA, G, W); Patung Hsien, *Wilson 1953* (AA, G, W); Fan Hsien, *Wilson 1952* (AA, G, W); western Hupeh, *Wilson 1564* (AA, NY, W), *2543* (NY); Liang Sung Kou, *W. Y. Chun 3794* (AA), *4140* (AA, W), *4429* (AA); Liang Kou Tai, *W. Y. Chun 4192* (W); Liu Gou Tai, *W. Y. Chun 3847* (AA); Peh Yang-tsai, *W. Y. Chun 3875* (AA); Chienshih Hsien, *H. C. Chow 1101* (AA, NY), *1341* (AA, NY), *1509* (AA), *1551* (AA, NY).

SZECHUAN: No precise locality, *E. Faber 158* (W); Muping, *Wilson 875* (AA, W); Wa-shen, *Wilson 1136* (AA, W), *1955* (AA); Wa-ssu Country and Wa-chuan Hsien, *Wilson 1954* in part (AA, W); Kuan Hsien, *W. P. Fang 2034* (AA), *2125* (AA, NY); Mt. Omei, *W. P. Fang 2246* (AA), *3106* (AA, NY), *3215* (AA, NY), *7558* (AA, NY, W), *12622* (AA); Nanchuan Hsien, *W. P. Fang 5693* (AA, NY), *C. Y. Hwang 64* (AA); Liang Feng Yah, *Steward, Chiao, & Cheo 262* (AA); Ta Ho Yen, Ran Shieh Kan, *Steward, Chiao, & Cheo 917* (AA); Kiang Yu Hsien, Kwan Wu Shan, *F. T. Wang 22255* (AA); Mt. Omei, *F. T. Wang 23654* (AA), *Y. S. Liu 1107* (AA), *K. N. Yin 163* (AA), *C. Y. Chiao & S. C. Fan 410* (AA), *786* (AA); Kuan Hsien, Chien-cheng Shan, *C. S. Fan 53* (AA); Moupin, *T. S. Wen 533* (AA).

YUNNAN: Vicum Bahan ad fluvium Lu-djang, *Handel-Mazzetti 8409* (holotype of *Nothopanax latifolius* Hand.-Maz., photo. and merotype, AA); Ping-pien Hsien, *H. T. Tsai 62457* (AA), *62493* (AA), *62632* (AA); no data, *H. T. Tsai 62881* (AA); Der-la, Champutung, *C. W. Wang 66755* (AA), *66817* (AA); Dzung-duei, Champutung, *C. W. Wang 66919* (AA); Meng-la, Jenn-yeh Hsien, *C. W. Wang 80572* (AA); Muli, Neryz to Zukou, *K. M. Feng 2911* (AA).

KWEICHOW: Kweiyang, *Y. Tsiang 8650* (NY); Shihtsien, *Y. Tsiang 4187* (NY); Tsungyi Hsien, Liang Feng Yah, *Steward, Chiao & Cheo 262* (NY); Ta Ho Yen, Fan Ching Shan, *Steward, Chiao, & Cheo 917* (NY, W).

SOUTHEASTERN TIBET: No precise locality, *Forrest 19243* (AA).

Nothopanax Davidii can be distinguished from *N. Delavayi* (Franch.) Harms by its larger leaves, which are generally simple, sometimes 3-lobed, and very rarely 3-foliolate, while *N. Delavayi* has its leaves mostly 2–5-foliolate and rarely simple. The Hupeh and Szechuan material of *N. Davidii* has the leaves all simple or lobed, never compound. The Yunnan specimens are generally closer to *N. Delavayi,* more deeply lobed and occasionally 3-foliolate, with narrower leaflets. However, in leaves that are compound, the leaflets are sessile and larger than in *N. Delavayi.* These slender and more deeply lobed forms appear to be merely local variations which it is not desirable, in my opinion, to recognize as distinct species or even as varieties. *Nothopanax Bockii* Harms and *N. latifolius* Hand.-Maz., being apparently variations of this nature, are treated here as straight synonyms.

2. **Nothopanax Delavayi** (Franch.) Harms ex Diels, Bot. Jahrb. **29**: 488. 1900; W. W. Smith, Notes Bot. Gard. Edinb. **14**: 379. 1924, **17**: 109, 182, 400. 1929–30; Hand.-Maz. Symb. Sin. **7**: 695. 1933; Rehder, Jour. Arn. Arb. **15**: 115. 1934.

Panax Delavayi Franch. Jour. de Bot. **10**: 305. 1896, Pl. Sin. Ecl. Prim. 75. 1897; Diels, Notes Bot. Gard. Edinb. **7**: 33. 1912; Lévl. Cat. Pl. Yun-Nan 11. 1915.

Acanthopanax Delavayi Viguier, Ann. Sci. Nat. IX. Bot. **4**: 42. 1906.

Aralia Bodinieri Lévl. Bull. Acad. Géogr. Bot. **24**: 143. 1914, Fl. Kouy-Tchéou 34. 1914.

Heptapleurum Esquirolii Lévl. Bull. Acad. Géogr. Bot. **24**: 45. 1914, Fl. Kouy-Tchéou 35. 1914.

A shrub 1–5 m. tall, commonly with 3–5-digitately foliolate leaves, these occasionally simple, and with flowers in paniculate umbels. Leaves coriaceous, petiolate, exstipulate, glabrous, green above, pale beneath; petioles slender, 4–12 cm. long; leaflets 2–5, generally 3 or 5, sessile to short-petiolulate, oblong-lanceolate, 6–12 cm. long, 1–2.5 cm. wide, the apex acuminate, the base narrowly cuneate, the margins subentire to denticulate-crenate, the lateral nerves 6–8 on both sides,

inconspicuous on both surfaces; petiolules 0–1 cm. long. Inflorescence a terminal panicle, to 15 cm. long, glabrous, the flowers in racemosely arranged umbels, the lower branches sometimes compound, the umbels 12–15-flowered, 2 cm. in diameter, the peduncles 1–1.5 cm. long, the pedicels 0.5 cm. long, articulate under the flower. Calyx-margin subentire to minutely 5-dentate. Petals 5, triangular-ovate, 1.5 mm. long. Stamens 5, the filaments 2 mm. long. Ovary 2-celled, the styles connate into a single column, the disk slightly elevated. Fruit flattened, 5 mm. across, the styles 2, 2–3 mm. long, connate at base, diverging at tip.

SIKANG: We-si Hsien, Yeh-chih, *C. W. Wang 70447* (AA).

YUNNAN: No precise locality, *Forrest 9590* (AA), *10691 = 10676* (AA), *10826* (AA), *11708* (AA), *11751* (AA); Salween Valley, *Forrest 6215* (AA); Chien-chuan-Mekong divide, *Forrest 23124* (AA, W); Mengtze, *Henry 9927* (NY, W), *9927B* (AA), *9927C* (AA), *9927D* (NY); San Ying Pan, *C. Schneider 395* (AA); Likiang, *C. Schneider 2236* (AA); Chungtien, *Handel-Mazzetti 4456* (AA); Tai-haosse, *O. Schoh 325* (AA, W); Pe Yen Tsin, *Simeon Ten 32* (AA), *537* (AA, W); Yangpi, *J. F. Rock 6203* (AA, W); Pinpo, *J. F. Rock 6951* (AA, NY, W); west of Likiang, near Ngaza, *J. F. Rock 10571* (AA, NY, W); Mt. Kenyichunpo and region of Champutong, *J. F. Rock 11633* (AA, W); Lan-ping Hsien, *H. T. Tsai 54028* (AA), *56134* (AA), *56278* (AA); no precise locality, *H. T. Tsai 57524* (AA); Pin-chuan Hsien, *H. T. Tsai 52942* (AA); Wei-si Hsien, *H. T. Tsai 57866* (AA), *59848* (AA), *63008* (AA), *63013* (AA); Wei-si Hsien, *C. W. Wang 67747* (AA); Huann-fu-ping, A-tung-tze, *C. W. Wang 69157* (AA); Chi-na-tung, Cham-pu-tung, *C. W. Wang 69999A* (AA); Monhua, Wipoushan, *T. T. Yü 18283* (AA); Salwin Valley, Sekai, *T. T. Yü 23059* (AA); Ta-hou-shan near Ta-koo, *K. M. Feng 624* (AA); southeast of Chungtien, between Bodo and Haba, *K. M. Feng 2069* (AA), *2423* (AA); northeastern Likiang, Tsai-koo Snow Mt., *K. M. Feng 2487* (AA); southern Chungtien, Chiao-tou on the Yangtze Bank, *K. M. Feng 3186* (AA); southern Chungtien, Wu-tso on the Yangtze, *K. M. Feng 3335* (AA); northwestern Likiang, Tamichung, *R. C. Ching 21488* (AA); northwestern Likiang, Tsze-kou on the Yangtze, *R. C. Ching 21598* (AA); northwestern Likiang, Ta-chen, *R. C. Ching 21895* (AA).

KWEICHOW: Pin-fa, *J. Cavalerie 871* (holotype of *Heptapleurum Esquirolii* Lévl., photo. AA); Gan-lin, *L. Martin* in *herb. Bodinier 2696* (syntype of *Aralia Bodinieri* Lévl., photo. AA).

3. **Nothopanax Rosthornii** Harms, Bot. Jahrb. **29**: 487. 1900; Harms & Rehder in Sargent, Pl. Wils. **2**: 557. 1916; Chung, Mem. Sci. Soc. China **1**: 187. 1924.

Acanthopanax Rosthornii Viguier, Ann. Sci. Nat. IX. Bot. **4**: 42. 1906.

A glabrous shrub, 5–8 m. tall, with digitately 5–7-foliolate leaves, the flowers in paniculate umbels. Leaves digitately compound, petiolate, exstipulate; petioles slender, 4–20 cm. long; leaflets 3–7, short-petiolulate, chartaceous, glabrous, dark green above, pale beneath, obovate-lanceolate, 6–12 cm. long, 1.5–3.5 cm. wide, the apex short-acuminate (acumen often curved), the base attenuate, the margins remotely denticulate-crenate to denticulate-serrate, the lateral nerves 8–10 on both sides, inconspicuous on both surfaces; petiolules 0.3–1 cm. long. Inflorescence a terminal panicle, glabrous, to 15 cm. long, the flowers in racemosely arranged umbels, on the branches of the panicle, the umbels 6–11-flowered, about 1.5 cm. in diameter, the peduncles 1–1.5 cm. long, the pedicels 5–6 mm. long, articulate under the flower. Calyx-margin subentire. Petals 5, triangular-ovate, 2 mm. long. Stamens 5, the filaments 3 mm. long. Ovary 2-celled, the disk much elevated, hemispherical, the styles united into a column. Fruit ovoid, 4 mm. long, 2.5 mm. wide, the style-column 1.5–2 mm. long, bifid at tip.

HUPEH: Without precise locality, *Wilson 2497* (AA); Hsing-shan Hsien, *Wilson 1961* in part (AA, G).

SZECHUAN: Hung-ya Hsien, *Wilson 1961* in part (AA, W); Mt. Omei, *Wilson 4938* (AA); Kuan Hsien, *F. T. Wang 2080* (AA).

This species can be distinguished from *Nothopanax Davidii* (Franch.) Harms and *N. Delavayi* (Franch.) Harms by its leaves being chartaceous and all 3–7-foliolate, and by having fewer flowers in the umbels, ovoid fruits, and styles

bifid only at tip in fruit. Leaves that are digitately compound can be distinguished from those of *N. Delavayi* in their leaflets being broader and widest above the middle.

XII. Acanthopanax Miquel

Acanthopanax Miq. Ann. Mus. Bot. Lugd.-Bat. **1**: 10. 1863.

Shrubs or small trees, glabrous or hairy, usually prickly, rarely unarmed. Leaves digitately compound; stipules wanting or very weakly developed. Flowers perfect or polygamous, in terminal umbels, solitary or few together, or forming large terminal panicles, the pedicels slightly or not articulate under the flower. Calyx-margin minutely 5-dentate. Petals 5, rarely 4, valvate. Stamens as many as the petals, the anthers oblong. Ovary 2, sometimes 3–5-celled. Styles 2–5, distinct or connate at base. Fruit laterally compressed or subglobose, 2–5-seeded; seeds compressed; endosperm uniform.

About 30 species in eastern Asia and the Himalayan region, one extending southward to the Philippines.

Type species: *Acanthopanax spinosus* (Linn. f.) Miq. (*Panax spinosus* Linn. f.).

Key to Species and Varieties

A. Styles 5, united throughout their whole length into a single column. (Section I. *Eleutherococcus* (Maxim.) Harms.)
B. Leaflets distinctly petiolulate.
C. Leaflets glabrous or pubescent, not setose or only very slightly so.
D. Branches usually densely covered with slender bristle-like prickles.
1. *A. senticosus.*
DD. Branches unarmed or with few and usually reflexed prickles.
E. Branches glabrous; prickles slender; peduncles usually slender, glabrous, without prickles.
F. Leaflets 5-foliolate, rarely 3–4-foliolate.
G. Leaflets glabrous .....2. *A. leucorrhizus.*
GG. Leaflets scabrous-pubescent above, fulvous-pubescent along the veins beneath.
H. Leaflets serrate or slightly double-serrate, without bristles.
2a. *A. leucorrhizus* var. *fulvescens.*
HH. Leaflets double-serrate, with setose-acuminate teeth, bristly on the petiolules and the midrib beneath .....2b. *A. leucorrhizus* var. *scaberulus.*
FF. Leaflets 3-foliolate, rarely 4–5-foliolate .....3. *A. setchuenensis.*
EE. Branches rough-pubescent at first, later glabrous, the prickles short, conical; peduncles stout and pubescent.
F. Leaflets pubescent along the veins beneath; pedicels glabrous or slightly pubescent .....4. *A. Henryi.*
FF. Leaflets glabrous beneath; pedicels very pubescent..4a. *A. Henryi* var. *Faberi.*
CC. Leaflets bristly or with setose hairs on both surfaces .....5. *A. Simonii.*
BB. Leaflets very short-petiolulate or almost sessile.
C. Petiolules short, 2–4 cm. long; leaflets obovate to oblong, small, 3.5–5.5 × 1.5–2.3 cm., the apex rounded to obtuse, the margins entire; umbels 1 or 2 .....6. *A. brachypus.*
CC. Petiolules long, 10–16 cm. long; leaflets oblong-elliptic, large, 14–17 × 5.5–8 cm., the apex acuminate, the margins serrulate-dentate; umbels more than 2.
7. *A. phanerophlebius.*
AA. Styles 2–5, divided at least at the apex.
B. Branches prickly.
C. Flowers subsessile or on short pubescent pedicels, 3–10 mm. long; styles 2. (Section II. *Cephalopanax* Baill.)
D. Styles united into a single column, bifid at tip only.
E. Leaflets usually 5, rough-pubescent beneath; pedicels 3–10 mm. long.
8. *A. divaricatus.*

EE. Leaflets usually 3, glabrous or nearly so beneath; pedicels very short, almost wanting.
F. Leaflets obovate to oblong-lanceolate, large, 8–18 cm. long; umbels 3.5 cm. across; fruit 1–1.5 cm. long .....9. *A. sessiliflorus.*
FF. Leaflets elliptic, small, 5–9 cm. long; umbels less than 3.5 cm. across; fruit 1 cm. or less long .....9a. *A. sessiliflorus* var. *parviceps.*
DD. Styles 2, united at base or to middle only; pedicels 5–7 mm. long; leaflets 3. 10. *A. lasiogyne.*
CC. Flowers slender-pedicellate, the pedicels glabrous; styles 2–5.
D. Umbels usually solitary; styles more or less united into a column or to middle or only at base. (Section III. *Euacanthopanax* Harms.)
E. Styles 3–5, free or united to middle.
F. Styles free or almost free .....11. *A. cissifolius.*
FF. Styles united at base or to above middle.
G. Styles united only at base or at most to middle.
H. Branches more or less densely prickly.
I. Prickles conical, reflexed, slightly broadened at base .....12. *A. Yui*
II. Prickles bristle-like, spreading or reflexed, narrow at base.
J. Branches densely prickly .....13. *A. Giraldii*
JJ. Branches unarmed or nearly so.
K. Leaflets obovate to obovate-oblong, glabrous, the margins irregularly double-serrate .....13a. *A. Giraldii* var. *inermis.*
KK. Leaflets lanceolate to oblanceolate, sparingly scabrid above, short-villose-pilose beneath, the margins simple-serrate. 13b. *A. Giraldii* var. *pilosulus.*
HH. Branches unarmed or prickly only at nodes.
I. Branches glabrous, unarmed or only bristle-prickly at the nodes.
J. Leaflets oblanceolate to oblong-lanceolate, 4–5.5 × 0.5–1.6 cm.; peduncles 1.5–5 cm. long .....14. *A. Wilsonii.*
JJ. Leaflets narrowly lanceolate to oblanceolate, 2–6.5 × 0.4–1.5 cm.; peduncles 1 cm. or less long .....15. *A. stenophyllus.*
II. Branches densely covered with bristles and with a single prickle at the base of petiole .....16. *A. setulosus.*
GG. Styles united to middle or above.
H. Peduncles short, 1–2 cm. long; styles united into a short conical column, their tips distinct and recurved .....17. *A. Rehderianus.*
HH. Peduncles slender, 5–10 cm. long; styles connate into a slender column nearly to apex .....18. *A. Sieboldianus.*
EE. Styles 2, free or united at base.
F. Leaflets glabrous or sometimes very slightly setulose .....19. *A. gracilistylus.*
FF. Leaflets pubescent to villose or scabrid.
G. Leaflets glabrous above, pubescent especially along the nerves beneath. 19a. *A. gracilistylus* var. *pubescens.*
GG. Leaflets glabrous to slightly setulose above, villose beneath, slightly setulose along the nerves .....19b. *A. gracilistylus* var. *villosulus.*
GGG. Leaflets scabrid-setulose above, scabrid to pubescent beneath. 19c. *A. gracilistylus* var. *nodiflorus.*
DD. Umbels usually 4–7 at ends of branches, rarely solitary; styles 2, united to middle or only at base. (Section IV. *Xanthoxylopanax* Harms.)
E. Prickles recurved at their tips; petioles scattered-prickly; peduncles 2–7 cm. long; pedicels 1 cm. long; fruit compressed.
F. Leaflets glabrous or very slightly setose along the midrib and veins above; margins serrulate .....20. *A. trifoliatus.*
FF. Leaflets more or less densely setose along the midrib and veins above; margins doubly setose-serrate .....20a. *A. trifoliatus* var. *setosus.*
EE. Prickles more or less straight; petioles unarmed; peduncles 1–2 cm. long; pedicels 5–10 mm. long; fruits very much compressed .....21. *A. Wardii.*
BB. Branches unarmed; umbels several in a raceme or compound umbel; styles 2–4, united at base or to middle. (Section V. *Evodiopanax* Harms.)
C. Leaflets glabrous, ferruginous-tomentose in axils of nerves beneath; peduncles and pedicels glabrous.

D. Leaflets 3; umbels few- to many-flowered; pedicels in fruit 1–3.5 cm. long. *22. A. evodiaefolius.*

DD. Leaflets mostly 5; umbels few-flowered; pedicels in fruit 1–2.5 cm. long. *22a. A. evodiaefolius* var. *gracilis.*

CC. Leaflets ferruginous-tomentose on lateral nerves beneath; peduncles and pedicels ferruginous-tomentose ..... *22b. A. evodiaefolius* var. *ferrugineus.*

1. **Acanthopanax senticosus** (Rupr. & Maxim.) Harms in Engl. & Prantl. Nat. Pflanzenfam. **3**(8): 50. 1894; Rehder in Bailey, Stand. Cycl. Hort. **1**: 193. 1914; Harms, Mitt. Deutsch. Dendr. Ges. **27**: 7. 1918; Chung, Mem. Sci. Soc. China **1**: 188. 1924; Lee, For. Bot. China 869. 1935.

Hedera senticosus Rupr. & Maxim. Bull. Phys.-Math. Acad. St. Pétersb. **15**: 134. 1856, 367. 1857.

Eleutherococcus senticosus Maxim. Mém. Div. Sav. Acad. Sci. St. Pétersb. **9**: 132. 1859 (Prim. Fl. Amur.); Regel, Gartenfl. **12**: 84. *t. 393.* 1863; Seem. Jour. Bot. **6**: 162. 1868, Revis. Heder. 80. 1868; Franch. Pl. David. **1**: 145. 1884; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 342. 1888; Yabe, Enum. Pl. Manch. 98. 1912; Nakai, Jour. Arn. Arb. **5**: 9. 1924, Fl. Sylvat. Koreana **16**: 31. *t. 6.* 1927; Nakai, Honda, Satake, & Kitagawa, Rep. 1st. Sci. Exp. Manch. **6**(6): 35. 1936.

Acanthopanax Eleutherococcus Makino, Bot. Mag. Tokyo **12**: 19. 1898.

A shrub 1–5 m. tall, with upright sparingly branched stems usually densely covered with prickles, 5- or sometimes 3-foliolate leaves, and terminal umbels, solitary or 2–4 arranged together. Prickles sometimes scattered, usually very slender, long, often pointing backward, narrow at base, commonly more densely arranged at bases of petioles. Leaves 5- or sometimes 3-foliolate, petiolate; petioles slender, 3–12 cm. long, with or without fine prickles; leaflets chartaceous, short-petiolulate, dark green above, with or without scattered hairs, light green beneath, commonly brownish pubescent on the veins when young, elliptic-obovate to oblong, 7–13 cm. long, 3–7 cm. wide, the median ones often slightly larger, the apex short-acuminate, the base cuneate, the margins sharply and doubly serrate, the lateral nerves about 6–7 on each side, conspicuous on both surfaces, the tertiary veins indistinct; petiolules 0.5–2 cm. long, brownish-pubescent, sometimes covered with fine bristles. Inflorescence of terminal umbels, solitary or 2–4 together, the umbels many-flowered, 3–4 cm. in diameter, the peduncles 5–7 cm. long, glabrous, the pedicels 1–2 cm. long, glabrous or slightly pubescent near base. Calyx glabrous, the margin subentire to indistinctly 5-dentate. Petals 5, ovate, 1.5 mm. long, glabrous on both surfaces. Stamens 5, the filaments 1.5 mm. long. Ovary 5-celled, the styles united into a single column. Fruit subglobose to ovoid, about 8 mm. long and 6 mm. thick, 5-angular, the style-column 1.5 mm. long.

SHANSI: Great Wall pass, *J. Hers 2604* (AA); Chiao-cheng District, Pa-shui-ko-shan, *H. Smith 7785* (AA); Lin-shih Hsien, Mien-shan, *T. Tang 982* (AA); Fangshan Hsien, Kaoti Mt., *T. Tang 1481* (AA, W).

HOPEI: Hsiao-wu-tai-shan, *F. N. Meyer 1365* (AA, NY), *1369* (AA, NY); Hsiao-wu-tai-shan, Yang-kia-ping, *H. Smith 306* (AA); Hsiao-wu-tai-shan, *J. Hers 1467* (AA); Lin Shan, *J. C. Liu 1481* (AA); Eastern Tomb, *C. F. Li 11234* (NY), *H. T. Tsai 50263* (AA); Yang-kia-ping, *C. W. Wang 60500* (AA); Hsi-ling-shan, *C. W. Wang 61060* (AA).

MANCHURIA: Amur, *Maximowicz s. n.* (NY); Amur River, *L. Schrank s. n.* (G); Chang-pei-shan to Tang-ho-ko, Sungari River, *H. E. M. James s. n.* (NY); Mukden, *V. Komarov 149* (AA, NY); Amur River, *S. Korshinsky s. n.* (G, W); eastern Siberia and Manchuria, *C. S. Sargent s. n.* (AA); east of Harbin, *C. S. Sargent s. n.* (AA); Maoershan Station, *B. V. Skvortzov s. n.* (AA); Hsiaolin, *P. H. & J. H. Dorsett 4072½* (NY, W); Kaolingtzu, *P. H. Dorsett 5984* (AA, W); Kirin, near Wochiukow, O-muhsien, *H. W. Kung 1896* (NY); Kirin, *F. H. Chen 426* (AA); Hsiaoling, *B. V. Skvortzov s. n.* (AA).

ADDITIONAL DISTRIBUTION: Korea, Sachlin, and Japan.

This species is especially characterized by its slender, usually backwardly pointed, bristle-like prickles.

1a. **Acanthopanax senticosus** f. **subinermis** (Regel) comb. nov.

Eleutherococcus senticosus β subinermis Regel, Mém. Acad. Sci. St. Pétersb. VII. **4**(4): 73. 1861 (Tent. Fl. Ussur.); Nakai, Jour. Arn. Arb. **5**: 10. 1924.

Eleutherococcus senticosus f. *inermis* Komarov, Act. Hort. Petrop. **25**: 121. 1907 (Fl. Mansh. III.).

Acanthopanax senticosus f. *inermis* Harms, Mitt. Deutsch. Dendr. Ges. **27**: 8. 1918.

Branches smooth or with very few prickles; leaves and umbels slightly larger than in the typical form.

SHANSI: Yuan-chu District, Ye-cho-shan, *H. Smith 6499* (AA); Tsiliyu, Ho-schan, *E. Licent 12209* (AA).

HONAN: Tsi Yuan Hsien, Tien Tan Shan, *J. Hers 1893* (AA).

HOPEI: Hsiao-wu-tai-shan, Tien-ling-ssu, *H. Smith 912* (AA).

CHAHAR: No precise locality, *C. W. Wang 62262* (AA).

MANCHURIA: Mifun Station, *B. V. Skvortzov s. n.* (AA).

2. **Acanthopanax leucorrhizus** (Oliv.) Harms in Engl. & Prantl, Nat. Pflanzenfam. 3(8): 49. 1894; Harms ex Diels, Bot. Jahrb. **29**: 488. 1900; Bean, Bot. Mag. **161**: *t. 8607*. 1915; Harms in Sargent, Pl. Wils. **2**: 557. 1916, Mitt. Deutsch. Dendr. Ges. **27**: 9. 1918; Chung, Mem. Sci. Soc. China **1**: 187. 1924; Rehder, Jour. Arn. Arb. **9**: 98. 1928; Lee, For. Bot. China 869. 1935.

Eleutherococcus leucorrhizus Oliv. in Hook. Icon. **18**: *t. 1711*. 1887; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 342. 1888; Nakai, Fl. Sylvat. Koreana **16**: 29. 1927.

A shrub 2–4 m. tall, glabrous throughout, the branches nearly unarmed or with 1–6 prickles at nodes, the leaves commonly 5-foliolate, the umbels terminal, solitary or several together in a corymbose cluster. Prickles slender, reflexed, sharply pointed, the internodes occasionally prickly. Leaves commonly 5-, sometimes 3–4-foliolate, petiolate; petioles 3–7 cm. long, occasionally armed toward tip with 1 or 2 prickles; leaflets chartaceous, short-petiolulate, glabrous, obovate, oblong, lanceolate, or oblanceolate, 5–12 cm. long, 2–4 cm. wide, the apex acuminate, the base cuneate, the margins sharply double-serrate, the lateral nerves about 6–10 on each side, distinct on both surfaces, the tertiary nerves inconspicuous; petiolules 3–6 mm. long. Inflorescence of terminal umbels, solitary or several together in a corymbose cluster, the umbels many-flowered, 4–5 cm. in diameter, the peduncles 4–10 cm. long, glabrous, the pedicels 1–2 cm. long, glabrous. Calyx glabrous, the margin minutely 5-dentate. Petals 5, ovate, acute, 2 mm. long, glabrous, reflexed. Stamens 5, the filaments 2 mm. long. Ovary 5-celled, the styles united into a column. Fruit globose-ovoid, 3–7 mm. long, slightly angular, the style-column persistent, short.

KANSU: Chi-shan, *F. N. Meyer 1769* (NY); Lien-hoa Shan, *J. F. Rock 13665* (AA); Lower Tebbu country, Wantsang, *J. F. Rock 14669* (AA), *14721* (AA, W), *15023* (AA).

HUPEH: No precise locality, *Henry 2573* (W), *2580* (W), *7909* (G, NY); Chang-yang Hsien, *Wilson 1965* (AA, G, W), *1967* in part (AA, G); Patung Hsien, *Wilson 1967* in part (AA, W); western Hupeh, *Wilson 2229* (AA, NY, W); Wan Tsao Shan, *W. Y. Chun 3915* (AA).

SZECHUAN: Mt. Omei, *Wilson 4936* (AA); *W. P. Fang 2795* (AA), *2861* (AA), *6692* (AA), *6723A* (AA, NY), *6713* (AA, NY, W), *7655* (AA), *7762* (AA), *F. T. Wang 23363* (AA), *Y. S. Liu 1181* (AA), *1190* (AA); O-pien Hsien, *Y. S. Liu 2246* (AA), *2248* (AA).

YUNNAN: Litiping Range, Mekong-Yangtze divide, east of Weihsi, *J. F. Rock 11553* (AA, W); Wei-si Hsien, *H. T. Tsai 57912* (AA), *57929* (AA), *57939* (AA), *59587* (AA); no data, *H. T. Tsai 57797* (AA); Wei-si Hsien, Yeh-chih, *C. W. Wang 78076* (AA); northwestern Likiang, Tamichung, *R. C. Ching 21449* (AA).

This species is related to *Acanthopanax Henryi* (Oliv.) Harms and *A. Simonii* Schneider, but may be readily distinguished by its glabrous leaves. It is also closely related to *A. senticosus* (Rupr. & Maxim.) Harms, differing in the stem being unarmed or few-prickled at the nodes only, the glabrous leaflets, the shorter style-column, and the slightly angular fruits.

2a. **Acanthopanax leucorrhizus** var. **fulvescens** Harms & Rehder in Sargent, Pl. Wils. **2:** 558. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 10. 1918; Chung, Mem. Sci. Soc. China **1:** 188. 1924; Lee, For. Bot. China 869. 1935.

Eleutherococcus leucorrhizus var. *fulvescens* Nakai, Fl. Sylvat. Koreana **16:** 27. 1927.

Acanthopanax longipes Hand.-Maz. Symb. Sin. **7:** 696. 1933, syn. nov.

Leaves 3–5-foliolate, the leaflets mostly elliptic, large and broad, sharply and closely serrate and often slightly double-serrate, scabrous-pubescent above, fulvous-pubescent on the veins beneath; petiolules densely fulvous-pubescent.

HUPEH: Fang Hsien, *Wilson 288* (paratype, AA, W); Wan Tsao Shan, *W. Y. Chun 3922* (AA).

SZECHUAN and SIKANG: Wen-chuen Hsien, *Wilson 1975* (HOLOTYPE, AA, isotype, W); Tachienlu, *Wilson 1001* (paratype, AA, W), *1023* (paratype, AA, G, W), *3693A* (paratype, AA); Sungpan Ting, *Wilson 4558* (paratype, AA); Li-fan Hsien, *F. T. Wang 21613* (AA); Mao Hsien, *F. T. Wang 21948* (AA); Mt. Omei, *F. T. Wang 23335* (AA), *Y. S. Liu 1616* (AA); Konting, *C. Y. Chiao 1806* (AA).

YUNNAN: Between the Yangtze and the Mekong, *Handel-Mazzetti 7865* (isotype of *Acanthopanax longipes* Hand.-Maz., AA); Liang-shan, I'cho, *H. T. Tsai 51291* (AA); no data, *H. T. Tsai 57366* (AA); Wei-si Hsien, Yeh-chih, *C. W. Wang 68337* (AA).

Acanthopanax longipes Hand.-Maz. is herewith reduced to synonymy after an examination of the isotype. Among the specimens cited above, *Wilson 288* and *4558, Wang 68337, Tsai 51291,* and *Handel-Mazzetti 7865* have the leaves distinctly double-serrate like the variety *scaberulus* Harms & Rehder. However, they lack the bristles on the veins and the petiolules and apparently represent a transition to that variety.

2b. **Acanthopanax leucorrhizus** var. **scaberulus** Harms & Rehder in Sargent, Pl. Wils. **2:** 558. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 10. 1918; Chung, Mem. Sci. Soc. China **1:** 186. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **17:** 133. 1929; Lee, For. Bot. China 869. 1935.

Eleutherococcus leucorrhizus var. *scaberulus* Nakai, Fl. Sylvat. Koreana **16:** 29. 1927.

Leaves always 5-foliolate, the leaflets smaller and narrower than in the species, obovate-oblong to oblanceolate, distinctly doubly serrate, the teeth acuminate to setose-acuminate, scabrous above, more or less fulvous-pubescent along the veins beneath, with spreading or slightly reflexed bristles on the petiolules and on the midrib beneath.

KIANGSI: Lushan, *A. N. Steward 4724* (AA, G, W).

HUPEH: Fang Hsien, *Wilson 323* (HOLOTYPE, AA, isotype, W), *323A* (paratype, AA, G, NY, W); Patung Hsien, *Wilson 323B* (paratype, AA); without precise locality, *Henry 5950E* (AA), *5950C* (G, W), *6503B* (AA, G).

SZECHUAN: Washan, *Wilson 1966* (paratype, AA, G, W); Omei Shan, *Y. S. Liu 1164* (AA), *1272* (AA), *W. P. Fang 12870* (AA), *12932* (AA), *C. Y. Chiao & C. S. Fan 273* (AA), *717* (AA), *802* (AA).

SIKANG: Konting, *C. Y. Chiao 2052* (AA).

3. **Acanthopanax setchuenensis** Harms ex Diels, Bot. Jahrb. **29:** 488. 1900; Harms, op cit. **36:** Beibl. **82:** 81. 1905; Harms & Rehder in Sargent, Pl. Wils. **2:** 559. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 10. 1918; Chung, Mem. Sci. Soc. China **1:** 188 1924; Lee, For. Bot. China 870. 1935.

Eleutherococcus setchuenensis Nakai, Fl. Sylvat. Koreana **16:** 30. 1927.

A shrub to 3 m. tall, the branches yellowish, unarmed or with few prickles, the leaves mostly 3-foliolate, the umbels terminal, 3–7 together. Prickles nearly straight, commonly grouped at base of petioles. Leaves 3-foliolate, very rarely 5-foliolate, petiolate; petioles 4–10 cm. long; leaflets coriaceous, petiolulate, dark green above, glaucescent beneath, glabrous, oblong-elliptic to ovate-oblong, 5–12 cm. long, 2–6 cm. wide, the apex acuminate to cuspidate, the base broadly cuneate or nearly rounded, the lateral ones often oblique, the margins remotely and irregularly serrulate or serrate-dentate to nearly entire, the lateral nerves about 8

on each side, subconspicuous above, distinct beneath, the tertiary veins very slightly impressed above, inconspicuous beneath; petiolules 3–8 mm. long. Inflorescence of 3–7 umbels clustered together, terminal, glabrous, the umbels many-flowered, about 3 cm. in diameter, the peduncles 1–3 cm. long, the middle ones sometimes to 10 cm. long, the pedicels 0.6–2 cm. long. Calyx glabrous, the margin 5-dentate. Petals 5, triangular-ovate, 2 mm. long, glabrous, reflexed. Stamens 5, the filaments 2.5 mm. long. Ovary 5-celled, the styles connate into a column. Fruit broadly ellipsoid, 6–8 mm. long, black, the style-column persistent, very short, about 1 cm. long.

SHENSI: Lao-y-shan, *J. Giraldi s. n.* (AA); Tai-pei-shan, *W. Purdom 2* (AA); Lung-chow, Kuan Shan, *J. Hers 2363* (AA).

HUPEH: No precise locality, *Henry 5950B* (AA, G, W), *6521* (G, W), *6630* (G, W); Fang Hsien, *Wilson 620* (AA, G, NY, W); Hsing-shan Hsien, *Wilson 1968* (AA, G, W); Wan Tsao Shan, *W. Y. Chun 3893* (AA); Lung Men Ho, *W. Y. Chun 4020* (AA), *4365* (W).

SZECHUAN and SIKANG: No precise locality, *C. Bock and A. Rosthorn 2573* (syntype, AA); Tachienlu, *Wilson 3693* (AA), *1044* (AA); Muping, *Wilson 865* (AA, W); Wa-chan, *Wilson 1113* (AA, W); Kuan Hsien, *W. P. Fang 2247* (AA, NY); south and east of Miao Hsien, *F. T. Wang 21964* (AA).

KWEICHOW: Lao Shan, Fan Ching Shan, *Steward, Chiao & Cheo 505* (W).

A species closely allied to *Acanthopanax leucorrhizus* Harms and distinguished from it by the almost invariably 3-foliolate leaves, the leaflets being glaucous beneath, more coriaceous, and with more remote and shallow serrations.

4. **Acanthopanax Henryi** (Oliv.) Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 49. 1894; Harms ex Diels, Bot. Jahrb. **29:** 488. 1900; Harms op. cit. **36:** Beibl. **82:** 80. 1905; Schneider, Ill. Handb. Laubholzk. **2:** 424, *f. 289 h–i, 290b.* 1909; O. Stapf, Bot. Mag. **135:** *t. 8316.* 1910; Sprenger, Mitt. Deutsch. Dendr. Ges. **20:** 240. 1911; Harms & Rehder in Sargent, Pl. Wils. **2:** 557. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 11. 1918; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Lee, For. Bot. China 869. 1935.

Eleutherococcus Henryi Oliv. in Hook. Icon. **18:** *t. 1711.* 1887; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 341. 1888; Hesse, Mitt. Deutsch. Dendr. Ges. **22:** 272. 1913; Nakai, Fl. Sylvat. Koreana **16:** 28. 1927.

A shrub about 1–3 m. tall, the branches rough-pubescent when young, soon becoming glabrous, armed with stout slightly recurved prickles, the leaves mostly 5-foliolate, the umbels several clustered together at the end of lateral branches. Leaves 5-foliolate, rarely 3-foliolate, petiolate; petioles 4–7 cm. long, scabrous; leaflets chartaceous, subsessile to short-petiolulate, deep green and scabrid above, paler and more or less pubescent especially along the nerves beneath, obovate to oblong, 3–10 cm. long, 2–4 cm. wide, the terminal ones often larger, the apex acute or short-acuminate, the base narrowly cuneate, the margins entire or often serrulate toward apex, the lateral nerves about 7 on each side, distinct on both faces, the tertiary veins inconspicuous; petiolules 0–7 mm. long, scabrid. Inflorescence of several umbels clustered together at end of lateral branches, the umbels many-flowered, 1–3 cm. in diameter, the terminal much larger than the others; peduncles stout, glabrous to pubescent, 1–3 cm. long, the pedicels 0.8–1.5 cm. long, glabrous or slightly pubescent. Calyx glabrous or slightly pubescent, the margin subentire. Petals 5, ovate, 2 mm. long, reflexed. Stamens 5, the filaments 2 mm. long. Ovary 5-celled, the styles united into a column. Fruit globose-ellipsoid, 8 mm. long, black, slightly 5-angular, the style-column persistent, slender, 2 mm. long.

SHENSI: Kian-shan, *J. Giraldi s. n.* (AA).

HONAN: Sunghsien, Shih Tse Miao, *J. Hers 1240* (AA).

HOPEI: Po Hua Shan, *T. F. King 520* (NY).

CHEKIANG: No precise locality, *Barchet 197* (W).

HUPEH: No precise locality, *Henry 4832* (G), *7609* (NY, G); Hsing-shan Hsien, *Wilson 379* (AA, W), *1977* (AA); Hsin-tien-tsze, *W. Y. Chun 4038* (AA).

4a. **Acanthopanax Henryi** var. **Faberi** Harms, Mitt. Deutsch. Dendr. Ges. **27:** 12. 1918.

Eleutherococcus sp. Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 342. 1888.

Differs from the typical form in the leaflets being glabrous beneath, the serrations often broad, the umbels small, the pedicels commonly very pubescent, and the calyx often puberulous.

CHEKIANG: Tienmushan, *T. N. Liou 263* (NY).

5. **Acanthopanax Simonii** Schneider, Ill. Handb. Laubholzk. **2:** 426. *f. 290c.* 1909; Dunn, Jour. Linn. Soc. Bot. **39:** 413. 1911; Bean, Trees and Shrubs Brit. Isles **1:** 133. 1914; Harms & Rehder in Sargent, Pl. Wils. **2:** 559. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 12. 1918; Chung, Mem. Sci. Soc. China **1:** 188. 1924; Hand.-Maz. Symb. Sin. **7:** 697. 1933; Lee, For. Bot. China 870. 1935.

Eleutherococcus Simonii Decne. ex Simon-Louis, Preisverzeichnis Herbst 1902 und Frühjahr 1903. 33. 1902, *nomen nudum;* Hesse, Mitt. Deutsch. Dendr. Ges. **22:** 272. *f.* 1913; Goez, op. cit. **25:** 168. 1916; Nakai, Fl. Sylvat. Koreana **16:** 30. 1927.

Eleutherococcus leucorrhizus Hort. ex Gard. Chron. III. **38:** 404. *f. 152.* 1905; non Oliv.

A shrub to 3 m. tall, the branches glabrous and smooth or with several stout slightly curved prickles below the petioles, the leaves 5-foliolate, the umbels 2–5 together at end of branches. Leaves 5-foliolate, seldom 3–4-foliolate, petiolate; petioles 5–7 cm. long, often with slender prickles; leaflets chartaceous, bright green, bristly on both surfaces, subsessile to short-petiolulate, oblong to oblanceolate, 4–12 cm. long, 1.5–4 cm. wide, the middle ones larger, the lateral ones much smaller, the apex acuminate, the base cuneate, the margins sharply and doubly serrate, the lateral nerves about 8–10 on each side, distinct on both surfaces, the tertiary veins inconspicuous; petiolules 2–7 mm. long, prickly or not. Inflorescence of umbels, 2–5 together at end of branches, glabrous, short-pedunculate, the umbels many-flowered, 2–3 cm. in diameter, the peduncles 1–5 cm. long, glabrous, the pedicels slender, glabrous, 4–10 mm. long, the flowers small, green. Calyx glabrous, the margin subentire to minutely 5-dentate. Petals 5, ovate, acute, 1.5 mm. long, glabrous on both surfaces, reflexed. Stamens 5, the filaments 1.5 mm. long. Ovary 5-celled, the styles connate into a short column. Fruit globose-ovoid, 5–6 mm. across, slightly 5-angular, black, the style-column persistent, short, about 1.5 mm. long.

NO PRECISE LOCALITY: *C. Schneider s. n.* (AA).

HUNAN: Yun-schan, *Handel-Mazzetti 835 = 12488* (AA).

HUPEH: Western Hupeh, *Henry 6503* (AA, G), *6503A* (W); western Hupeh, *Wilson 1456* (AA, NY), *2229A* (NY).

YUNNAN: Chen-hsiung Hsien, *H. T. Tsai 52740* (AA).

KWEICHOW: Tuyun, *Y. Tsiang 5746* (NY); Tating, *Y. Tsiang 8878* (NY).

This species is very near *Acanthopanax leucorrhizus* Harms but can be distinguished by the bristly leaves, by the inflorescence which consists of several short-stalked umbels, and by the stout recurved prickles.

6. **Acanthopanax brachypus** Harms, Bot. Jahrb. **36:** Beibl. **82:** 80. 1905; Dunn, Jour. Linn. Soc. Bot. **39:** 413. 1911; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 13. 1918; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Lee, For. Bot. China 868. 1935.

Eleutherococcus brachypus Nakai, Fl. Sylvat. Koreana **16:** 27. 1927.

A shrub with glabrous branches, unarmed or sometimes with a single prickle at the nodes, the leaves 3–5-foliolate, very short-petiolate, the inflorescence in umbels, 1 or 2 terminating the branches. Prickles short, pointing backward. Leaves very short-petiolate; petioles 2–4 mm. or less long; leaflets chartaceous, glabrous, sessile or short-petiolulate, obovate to obovate-oblong, 3–6 cm. long, 1–2.5 cm. wide, the apex rounded or short-acute, the base narrowly attenuate, the margins entire, the lateral nerves about 3–5 on each side, subconspicuous above, elevated and prominent beneath, the tertiary veins slightly impressed above, inconspicuous beneath; petiolules 0–1 cm. long. Flowers unknown. Fruiting inflorescence of umbels, 1 or 2 terminating the branches, glabrous,

the umbels many-fruited, the peduncles 3–6 cm. long, the pedicels 1–1.5 cm. long. Fruit subglobose, 5 mm. long, strongly 5-angular, the styles united into a single column, persistent, about 2 mm. long.

SHENSI: Fukio, *Giraldi 36* (HOLOTYPE, photo. and merotype in AA).

This species is characterized by its very short-petiolate leaves.

7. **Acanthopanax phanerophlebius** Merr. & Chun, Sunyatsenia **2**: 12. *t. 6.* 1934.

An erect to subscandent shrub, the branches unarmed and glabrous, castaneous-pubescent when young, the leaves 3–4-foliolate, the umbels terminal, several loosely arranged together. Leaves petiolate; petioles 10–16 cm. long; leaflets chartaceous, sessile to subsessile, glabrous, oblong-elliptic, 14–17 cm. long, 5.5–8 cm. wide, the apex acuminate, the base of median ones narrowly attenuate, symmetrical, of the lateral ones very unequal, broad, 2-nerved and rounded on the outside, acute on the inside, the margins serrate-dentate, the lateral nerves about 10 on each side, distinct and elevated on both surfaces, the tertiary nerves conspicuous and elevated on both surfaces. Inflorescence of umbels, several loosely arranged together, terminal, about 18 cm. long, castaneous-pubescent when young, the umbels many-flowered, 2.5 cm. in diameter, the peduncles 4–6 cm. long, more or less umbellately arranged on the main axis, the bracts ovate, acuminate, pubescent, about 5 mm. long, the bracteoles lanceolate, acuminate, 3 mm. long, the pedicels about 1 cm. long, slender, ferruginous-pubescent. Calyx pubescent outside, 5-dentate, the lobes oblong, obtuse, 1 mm. long. Petals 5, oblong-ovate, acute, 2.5 cm. long, 1.5 cm. wide, slightly coherent, glabrous to obscurely pubescent toward tips. Ovary 2–4-celled, the disk elevated, hemispherical, the styles united into a single column, 1–1.2 cm. long.

KWANGTUNG: Sunyi, Wokchong Ping, *S. P. Ko 51780* (HOLOTYPE, NY); Sunyi, Falon Shan, *C. Wang 30911* (NY).

A species characterized by being entirely unarmed and by its lax inflorescence, the castaneous indumentum on the young parts and the inflorescences, and its 3–4-foliolate leaves, the leaflets large, more or less sessile, with prominent nerves and very inequilateral outer leaflets. It closely resembles *Brassaiopsis tripteris* (Lévl.) Rehder and is undoubtedly congeneric with that species. As *Brassaiopsis* typically has 2-celled ovaries, it does not seem to be desirable to transfer *Acanthopanax phanerophlebius* to that genus at the present time. When more complete material is available it may, however, be desirable to make some other generic disposition of this apparently distinct form as well as of *Brassaiopsis tripteris*. Unfortunately the material available for study representing *Brassaiopsis tripteris* and *Acanthopanax phanerophlebius* is at present very limited. The fruits of both are as yet unknown.

8. **Acanthopanax divaricatus** (Sieb. & Zucc.) Seem. Jour. Bot. **5**: 239. 1867, Revis. Heder. 87. 1868; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 339. 1888; Harms, in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 50. 1864, Mitt. Deutsch. Dendr. Ges. **27**: 17. 1918; Nakai, Jour. Arn. Arb. **5**: 6. 1924; Courtois, Notes Bot. Chine Mus. Heude **2**: 55. 1933.

Panax divaricatus Sieb. & Zucc. Abh. Akad. Muench. **4**(2): 200. 1845.

Kalopanax divaricatus Miq. Ann. Mus. Bot. Lugd.-Bat. **1**: 17. 1863, **2**: 158. 1866.

Acanthopanax asperatus Franch. & Sav. Enum. Pl. Jap. **1**: 193. 1875, **2**: 378. 1879; Franch. Pl. David. **1**: 146 (as *A. asperulatum*). 1884.

A shrub about 1–3 m. tall, glabrous or pubescent when young, unarmed or with reflexed prickles, the leaves 5-foliolate, the umbels solitary or more commonly 3–7 together at ends of branches. Leaves 5-foliolate, long-petiolate; petioles 4–7 cm. long; leaflets sessile or short-petiolulate, scattered-pubescent or almost glabrous above, villose-pubescent or scattered-pubescent beneath, scarcely glabrous, obovate-oblong to obovate-lanceolate or oblong-lanceolate, 4–7 cm. long,

2–4 cm. wide, the apex acute to acuminate, the base attenuate, the margins simply or doubly serrate, the lateral nerves about 6–8 on each side, subconspicuous above, distinct beneath, the tertiary veins inconspicuous; petiolules 0–5 mm. long. Inflorescence of umbels, these solitary or more commonly 3–7 together at end of branches, the umbels many-flowered, about 2 cm. in diameter, the peduncles pubescent, 1.5 cm. or more long, the pedicels 4–10 mm. long, pubescent. Calyx pubescent, the margin subentire. Petals 5, glabrous, about 1.5 mm. long. Stamens 5, the filaments about 2 mm. long. Ovary 2-celled, the styles united into a simple column, separated at tip only into 2 stigmas. Fruit globose, 2-celled, about 8 mm. long, the style-column persistent, about 2 mm. long.

HONAN: Northern Honan, Tsi Yuan Hsien, Tien Tai Shan, *J. Hers 184* (AA).
ADDITIONAL DISTRIBUTION: Japan.

This Japanese species is recorded by several authors from North China, as occurring in the provinces Jehol and Hopei, and possibly also in Anhwei and elsewhere. I have seen only one specimen from China that I can refer to this species.

9. **Acanthopanax sessiliflorus** (Rupr. & Maxim.) Seem. Jour. Bot. **5**: 239. 1867, Revis. Heder. 87. 1868; Franch. Pl. David. **1**: 145. 1884; Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 50. 1894; Yabe, Enum. Pl. Manch. 98. 1912; Harms, Mitt. Deutsch. Dendr. Ges. **27**: 14. 1918; Chung, Mem. Sci. Soc. China **1**: 188. 1924; Nakai, Jour. Arn. Arb. **5**: 5. 1924, Fl. Sylvat. Koreana **16**: *22. t. 2.* 1927; Nakai, Honda, Satake, & Kitagawa, Rep. 1st Sci. Exp. Manch. **6**(6): 35. 1936.

Panax sessiliflorus Rupr. & Maxim. Bull. Phys.-Math. Acad. St. Pétersb. **15**: 133. 1857; Regel, Gartenfl. **11**: 238. *t. 369.* 1862.

Cephalopanax sessiliflorum Baill. ex Nakai, Jour. Arn. Arb. **5**: 5. 1924, as synonym.

A shrub 2–5 m. tall, the branches spreading, with few scattered prickles or unarmed, the leaves commonly 3-foliolate, the umbels solitary, compact, subcapitate, 3–5 together at the ends of branches. Prickles stout and straight. Leaves 3-, sometimes 5-foliolate, petiolate; petioles 3–12 cm. long, unarmed or sometimes with a few prickles; leaflets short-petiolulate, chartaceous, nearly glabrous or sometimes scabrid, obovate or oblong-obovate to oblong-lanceolate, the median ones 12–18 cm. long, 5–7 cm. wide, the lateral ones 8–14 cm. long, 3–6 cm. wide, the apex acuminate, the base cuneate, the lateral ones often slightly oblique, the margins irregularly serrate, the lateral nerves about 5–7 on each side, conspicuous, the tertiary nerves inconspicuous on both surfaces; petiolules 0.2–1 cm. long. Inflorescence of compact subcapitate umbels, mostly 3–5 together, arranged in a raceme or in a compound umbel at end of branches, the umbels globose, many-flowered, 3.5 cm. in diameter, the terminal one often larger, the peduncles short, pubescent, 0.5–1 cm. long, the terminal one often longest. Flowers sessile. Calyx densely pubescent, the margin distinctly 5-dentate. Petals 5, dull purplish, 1.5 mm. long. Stamens 5, the filaments 1.5 mm. long. Ovary 2-celled, the styles united into a single column, with 2 distinct stigmas. Fruit black, broadly ellipsoid, 1–1.5 cm. long, slightly angular, arranged in a globose head about 3–4 cm. across.

HOPEI: Hsiao-wu-tai-shan, Yang Kia Ping, *H. Smith 303* (AA); Hsiao-wu-tai-shan, Tien-lin-ssu, *H. Smith 758* (AA); Hsaio-wu-tai-shan, Yang Kia Ping, *J. Hers 2097* (AA); Shih Pa Pan Ling, *Liu & Read L2012 = R563* (AA); Eastern Tomb, *C. F. Li 10098* (NY); Tan-nan-kou, *C. W. Wang 60484* (AA).

MANCHURIA: No precise locality, *E. Faber 1757* (NY); Amur, *Maximowicz s. n.* (G, NY, W), *R. Maack s. n.* (G); coast of Manchuria, *C. Wilford s. n.* (G); Amur River, *V. Komarov 1148* (AA, NY); Liaotung Peninsula, Wangfangko, *D. Litvinov s. n.* (AA, G, NY); Er Tien Tien Tze, *P. H. & J. H. Dorsett 3107* (AA, NY, W); Etrentrentze Station, *Skvortzov s. n.* (AA); Mulin, *Skvortzov s. n.* (AA); Koalingtze Station, *Skvortzov s. n.* (AA); Kirin, Chingpohu, Changcharlingtzu, *H. W. Kung 2087* (NY); Kirin, *F. H. Chen 333* (AA, NY).

ADDITIONAL DISTRIBUTION: Korea.

This species is characterized by the pubescent sessile flowers, compactly arranged in globose subcapitate umbels, and the short-pubescent peduncles.

9a. **Acanthopanax sessiliflorus** var. **parviceps** Rehder, Mitt. Deutsch. Dendr. Ges. **21:** 192. 1912.

A low shrub; leaflets elliptic, 5–9 cm. long, acute, slightly and distinctly serrate; umbels one or few, less than 3 cm. across; fruit ovoid, 1 cm. or less long.

HOPEI: Cultivated in the Arnold Arboretum from seeds sent by E. Bretschneider from Peking in 1881, specimens collected July 20, 1911, Aug. 1, 1911, Aug. 21, 1911, and Oct. 10, 1911, *no. 588–7029* (AA).

10. **Acanthopanax lasiogyne** Harms in Sargent, Pl. Wils. **2:** 563. 1916, Mitt. Deutsch. Dendr. Ges. **27:** 17. *t. 2.* 1918; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Lee, For. Bot. China 869. 1935.

A shrub 2–6 m. tall, the branches glabrous and unarmed(?), the leaves 3-foliolate, the umbels terminal and solitary. Leaves short- or long-petiolate; petioles glabrous, 1.5–6 cm. long; leaflets sessile to subsessile, chartaceous, glabrous, oblong or obovate to obovate-oblong, about 4–6 cm. long, 1.5–4.5 cm. wide, the apex short-acuminate, the base acute, the lateral ones more or less oblique, the margins entire or subentire to slightly serrate near apex, the lateral nerves about 5 or 6 on each side, subconspicuous, the tertiary veins slightly impressed above. Inflorescence a terminal solitary umbel, many-flowered, short-pedunculate, the peduncles 5 mm. long, tomentose to glabrescent, elongated to about 1 cm. in fruit, the pedicels 5–7 mm. long, tomentose, glabrescent in fruit, the bracteoles membranaceous, ovate, 2 mm. long, tomentose. Calyx 1.5 mm. long, densely white-tomentose, the margin subentire. Petals 5, triangular-ovate, 2 mm. long, glabrous on both surfaces, reflexed. Stamens 5, the filaments 2 mm. long. Ovary 2-celled, the styles 2, connate at base. Fruit rounded, much compressed, glabrous, 7–8 mm. long, the styles about 2 mm. long, united to middle, reflexed above.

SIKANG: Near Tachienlu, *Wilson 1313* (HOLOTYPE, AA, isotype, AA, G, NY, W); *Wilson 4167* (paratype, AA); Kangtin Hsien, Tachienlu, *W. P. Fang 3523* (AA).

Harms' original specimens are all unarmed, but *Fang 3523* bears two short, nearly straight prickles with broad, elongate bases. This species resembles *Acanthopanax sessiliflorus* Seem. in its white-tomentose flowers, but is readily distinguished by its longer pedicels. It is very similar to *A. Wardii* Smith in general appearance, but the latter has wholly glabrous flowers and much longer peduncles and pedicels.

11. **Acanthopanax cissifolius** (Griff.) Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 50. 1894; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 19. 1918; Hand.-Maz. Symb. Sin. **7:** 697. 1933; Lee, For. Bot. China 870. 1935.

Aralia cissifolia Griff. ex Seem. Jour. Bot. **6:** 134. 1868, Revis. Heder. 91. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2:** 722. 1879.

Eleutherococcus cissifolius Nakai, Chosen-shokubutsu **1:** 420. 1914, Jour. Arn. Arb. **5:** 9. 1924, Fl. Sylvat. Koreana **16:** 27. 1927.

A shrub about 3 m. tall, the branches unarmed or with scattered short prickles, the leaves mostly 5-foliolate, the umbels terminal and mostly solitary. Leaves mostly 5-, rarely 3–4-foliolate, long-petiolate; petioles 5–12 cm. long, slender, glabrous or pubescent, often with a single prickle; leaflets chartaceous, subsessile to short-petiolulate, glabrous or scattered-pubescent above, pubescent especially along the nerves beneath, lanceolate to oblanceolate or obovate to oblong, about 4–7 cm. long, 1.5–3.5 cm. wide, the apex acuminate, the base attenuate, the margins simply or doubly serrate, the lateral nerves about 6–8 on each side, subconspicuous above, manifest beneath, the tertiary veins inconspicuous above, subconspicuous beneath; petiolules 0.5 mm. long. Inflorescence a solitary ter-

minal umbel, sometimes with one or two additional short-pedunculate umbels at base, the umbels many-flowered, about 2.5 cm. across; peduncles 4–12 cm. long, somewhat pubescent, the pedicels about 0.8–1 cm. long, pubescent. Calyx glabrous, the margin entire. Petals 5, triangular, ovate, glabrous, about 2 mm. long. Stamens 5, the filaments 2 mm. long. Ovary 3–5-celled, the styles 5, more or less wholly distinct. Fruit globose, about 8 mm. across, black.

YUNNAN: No precise locality, *Forrest 10211* (AA); between the Yangtze and Kungsian, *C. Schneider 2387* (AA, G); Tschanalaka, Tseku, *Handel-Mazzetti 8888* (AA); Wei-si Hsien, Yeh-chih, *C. W. Wang 70411* (AA); Chungtien Plateau, *T. T. Yü 13622* (AA).

ADDITIONAL DISTRIBUTION: North India.

This species is characterized by its 3 to 5 almost entirely free styles. Some of the specimens cited above are more or less sterile or fragmentary, but in general they seem to agree well with the Indian specimens. Most of them have the leaves almost wholly glabrous.

12. **Acanthopanax Yui** sp. nov. Fig. 12.

Frutex circa 1 m. altus, ramulis dense vel parce aculeatis, aculeis gracilibus conicis, reflexis, subtus leviter dilatatis. Foliis 3–5-foliolatis petiolatis; petiolis 4–12 cm. longis glabris, inermibus vel parce aculeatis; foliolis submembranaceis, sessilibus vel subsessilibus, supra secus venas parce setulosis vel glabris, subtus

Fig. 12. *Acanthopanax Yui; 1.* branchlet with infructescence, × ½; *2.* flower, × 5; *3.* fruit, × 3.

glabris, obovatis vel oblongis vel obovato-oblongis, 3.5–10 cm. longis, 1.5–4.5 cm. latis, lateralibus plerumque minoribus et obliquis, apice acutis vel breviter acuminatis, basi cuneatis, margine irregulariter duplicato-serratis, nervis lateralibus utrinsecus circa 8–10, supra subconspicuis, subtus prominentibus, venis tertiariis obscuris. Inflorescentiis umbellatis terminalibus solitariis, umbellis multifloris circa 4 cm. latis, pedunculis 1 cm. longis glabris. Calyce glabro 1.5–2 cm. longo, margine integro. Petalis 5 triangulari-ovatis, 2 mm. longis, glabris. Staminibus 5, filamentis 2 mm. longis. Ovario 5-loculari, stylis 5 ad basim connatis. Fructu ovoideo, 7 mm. longo, 6 mm. magno, pentagono.

YUNNAN: No data, *T. T. Yü 9935* (AA), *12165* (TYPE, AA); Atungtze, Mt. Yangtsa, *T. T. Yü 10188* (AA).

This species is related to *Acanthopanax Giraldii* Harms, from which it may be distinguished by its stouter, conical prickles, larger leaflets, and larger umbels. *Yü 9935* is densely armed, while the other two specimens are only sparingly so. Otherwise the several specimens agree and they clearly belong to the same species.

13. **Acanthopanax Giraldii** Harms, Bot. Jahrb. **36:** Beibl. **82:** 80. 1905; Dunn, Jour. Linn. Soc. Bot. **39:** 413. 1911; Harms & Rehder in Sargent, Pl. Wils. **2:** 560. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 19. *t. 3, A–H.* 1918; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Rehder, Jour. Arn. Arb. **9:** 98. 1928; W. W. Smith, Notes Bot. Gard. Edinb. **17:** 65, 132, 319. 1929–30; Lee, For. Bot. China 868. 1935.

Eleutherococcus Giraldii Nakai, Jour. Arn. Arb. **5:** 9. 1924, Fl. Sylvat. Koreana **16:** 28. 1927.

A shrub to 3 m. tall, the branches densely armed with bristle-like spreading or reflexed prickles, the leaves 3–5-foliolate, the umbels terminal and usually solitary. Leaves petiolate; petioles 3–6 cm. long, often bristly; leaflets submembranaceous, sessile to subsessile, glabrous, sometimes sparingly setose when young, obovate to obovate-oblong, 2.5–5 cm. long, 1.5–2.5 cm. wide, the apex acute to short-acuminate, the base narrowly cuneate, the margins irregularly double-serrulate, the lateral nerves about 5 on each side, subconspicuous above, inconspicuous beneath, the tertiary veins obscure. Inflorescence of terminal umbels, these usually solitary, short-pedunculate, glabrous, many-flowered, about 2 cm. in diameter; peduncles commonly 7 mm. long, occasionally to 2 cm. long, the pedicels 5–7 mm. long, glabrous. Calyx glabrous, the margin subentire. Petals 5, ovate, 2 mm. long, glabrous. Stamens 5, the filaments 2 mm. long. Ovary 5-celled, the styles 5, connate below, spreading at tip. Fruit subglobose, 8 mm. across, 5-angular, the style-column persistent, short, divided nearly to middle, spreading above.

KANSU: Gragannar, south of Old Taicho, *R. C. Ching 887* (AA, G, W); Lien-hoa-shan, *J. F. Rock 12695* (AA), *13491* (AA); T'ao River Basin, Shiaoku, beyond Adjuan, *J. R. Rock 12845* (AA, W); T'ao River Basin, Shiaoku, en route to Tsarekika, East Tebbu, *J. F. Rock 13534* (AA, W); lower Tebbu country, upper Mayaku, *J. F. Rock 14764* (AA); Wantsang, *J. F. Rock 14811* (AA, NY); Dayyayaku, Muishan, *J. F. Rock 14866* (AA); Ngongo, *J. F. Rock 14983* (AA); Tschinglung-shan et Matschaling, Lantschou, *G. Fenzel s. n.* (AA).
SHENSI: Tai-pei-shan, *W. Purdom 3* (AA), *445* (AA, W).
HOPEI: Wei-chang, *W. Purdom 7* (AA).
HUPEH: No precise locality, *Henry 6891* (G, W).
SZECHUAN and SIKANG: Tachienlu, *Wilson 1014* (AA, G, W); southeast of Tachienlu, *Wilson 1969* (AA, W); northeast of Tachienlu, *Wilson 1970* (AA, W), *1971* (AA, W); Sungpan-ting, *Wilson 4018* (AA); west of Kuan Hsien, *Wilson 4018A* (AA); Sungpan, *H. Smith 2831* (AA); Dongrego, *H. Smith 3641* (AA); Sungpien Hsien, *W. P. Fang 4145* (AA, NY); Fu-pien Hsien, *F. T. Wang 21414* (AA).

This species is characterized by the densely arranged bristle-like prickles and the 5 styles connate to about the middle and spreading above.

13a. **Acanthopanax Giraldii** var. **inermis** Harms & Rehder in Sargent, Pl. Wils. **2:** 560. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 20. 1918; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Lee, For. Bot. China 868. 1935.

Eleutherococcus Giraldii var. *inermis* Nakai, Fl. Sylvat. Koreana **16:** 28. 1927.

Branches unarmed or nearly so, slightly scabrid.

SHANSI: Yao-shan, Hsaiotszhuan, *L. Licent 12668* (AA).

HUPEH: Fan Hsien, *Wilson 276* (HOLOTYPE, AA, isotype, AA, G, NY, W); Hsiang-shan Hsien, *Wilson 1976* (paratype, AA, W); no precise locality, *Wilson 2354* (NY); Enshih Hsien, *H. C. Chow 1802* (AA, NY).

13b. **Acanthopanax Giraldii** var. **pilosulus** Rehder, Jour. Arn. Arb. **9:** 99. 1928; Lee, For. Bot. China 868. 1935.

Branches nearly unarmed; leaflets lanceolate to oblanceolate, simple-serrate, sparsely scabrid-pilosulose above, short villose-pilose beneath.

KANSU: Hsiao Mo K'ou, near Lichen, *R. C. Ching 337* (AA, W); Tebbu country, *J. F. Rock 13106* (HOLOTYPE, AA); T'ao River Basin, west of Adjuan, eastern Minshan Range, *J. F. Rock 12657* (paratype, AA); from Tibetan Country west, Tow River, *W. Purdom s. n.* (AA); southwest of Tow River, Taochow, *W. Purdom s. n.* (AA).

The two specimens collected by Purdom have the branches more or less densely armed, but their leaflets suggest this variety. Evidently they represent a transition from the typical form to this variety.

14. **Acanthopanax Wilsonii** Harms in Sargent, Pl. Wils. **2:** 560. 1916, Mitt. Deutsch. Dendr. Ges. **27:** 20. 1918; Chung, Mem. Sci. Soc. China **1:** 188. 1924; Hand.-Maz. Symb. Sin. **7:** 697. 1933; Lee, For. Bot. China 871. 1935.

Eleutherococcus Wilsonii Nakai, Jour. Arn. Arb. **5:** 9. 1924, Fl. Sylvat. Koreana **16:** 31. 1927.

A shrub 2–3 m. tall, with glabrous or minutely puberulous branches unarmed or setose-prickly at the nodes, small 3–5-foliolate leaves, and solitary umbels at ends of long or short branches. Leaves long- or short-petiolate; petioles 0.5–6 cm. long, glabrous; leaflets chartaceous, subsessile, glabrous, oblanceolate or lanceolate to oblong-oblanceolate, about 4–5.5 cm. long, 0.5–1.6 cm. wide, the lateral ones often oblique and slightly curved, the apex acute to acuminate, the base narrowly attenuate, the margins crenate-serrulate, the lateral nerves 3–4 on each side, subconspicuous above, inconspicuous beneath, the tertiary veins obscure. Inflorescence of solitary umbels at ends of short or long branches, the umbels many-flowered, about 2.5 cm. across, the peduncles 1.5–5 cm. long, glabrous, the pedicels about 1 cm. long, occasionally with one or two flowers developed at base of peduncle. Calyx glabrous, the margin subentire to minutely 5-dentate. Petals 5, triangular-ovate, 1.5 mm. long, glabrous. Stamens 5, the filaments 2 mm. long. Ovary 3–5-celled, the styles 3–5, connate at base, free above middle. Fruit subglobose, angular, 6–7 mm. in diameter, the styles 5, about 1.5 mm. long, connate at base, free and divergent above.

SZECHUAN and SIKANG: West of Kuan Hsien, *Wilson 1972* (HOLOTYPE, AA, isotype, W); Tachienlu, *Wilson 3690* (paratype, AA); northeast of Sungpan, *Wilson 4561* (paratype, AA).

YUNNAN: No precise locality, *Forrest 10259* (AA); Yuling-schan, Likiang, *Handel-Mazzetti 6645* (AA, W); Yangtze watershed, District of Likiang, western slopes of Likiang Snow Range, *J. F. Rock 3771* (AA, NY, W), *4866* (AA, W); Yangtze drainage basin east of Likiang, *J. F. Rock 8984* (W); Chungtien, *J. F. Rock 24712* (AA, NY, W); northern flank of Haba Snow Range, *K. M. Feng 1330* (AA); Lai-cha-tse-ka, southeast of Chungtien, *K. M. Feng 1860* (AA).

This species is closely related to *Acanthopanax Sieboldianus* Makino, and can be distinguished from the latter by the terminal inflorescence, the styles being connate only at base, and the narrower leaflets. The Yunnan specimens cited

above have generally larger leaflets, shorter peduncles, and mostly unarmed branches; otherwise they seem to agree well with the type from Szechuan.

15. **Acanthopanax stenophyllus** Harms in Sargent, Pl. Wils. **2:** 564. 1916, Mitt. Deutsch. Dendr. Ges. **27:** 20. 1918; Chung, Mem. Sci. Soc. China **1:** 188. 1924; Lee, For. Bot. China 870. 1935.

Eleutherococcus stenophyllus Nakai, Jour. Arn. Arb. **5:** 9. 1924; Fl. Sylvat. Koreana **16:** 31. 1927.

A shrub about 2–3 m. tall, with subglabrous to glabrous branches unarmed or slightly bristle-prickly at the nodes, 3–5-foliolate leaves, and terminal solitary umbels. Leaves long-petiolate; petioles 3–7 cm. long, glabrous; leaflets narrow, chartaceous, glabrous, subsessile to short-petiolulate, lanceolate or oblanceolate to oblong-oblanceolate, 2–6.5 cm. long, 0.4–1.5 cm. wide, the apex acuminate (acumen often slightly curved), the base narrowly attenuate, the margins simply or doubly serrate, the lateral nerves 6–10 on each side, subconspicuous above, inconspicuous beneath, the tertiary veins obscure. Inflorescence of terminal solitary umbels, these many-flowered, about 3 cm. across, the peduncles short, about 1 cm. or less long, glabrous, elongating in fruit, the pedicels slender, about 1 cm. long, glabrous. Calyx glabrous, minutely 5-dentate. Petals 5, triangular-ovate, 1.2 cm. long, glabrous. Ovary 3–5-celled, the styles 3–5, shortly connate at base, free above, about 0.8 mm. long. Fruit subglobose, slightly 5-angular, 7 mm. long, the styles 3–5, united at base only, distinct above.

SHENSI: Tai-pei-shan, *W. Purdom 4* (ISOTYPE, AA, W).
SZECHUAN: Li-fan Hsien, *F. T. Wang 21644* (AA).

This species is characterized by its narrow leaflets and the 3–5 styles connate at base only.

15a. **Acanthopanax stenophyllus** f. **angustissimus** Rehder, Jour. Arn. Arb. **9:** 99. 1928.

Differs from the species in the leaflets being more linear, only 3–5 mm. wide, and minutely serrulate. A shrub 0.75–2.5 m. tall; branches armed at the nodes with a few bristle-like erect prickles.

KANSU: Lower Tebbu country, Wantsang, *J. F. Rock 14850* (HOLOTYPE, AA).

15b. **Acanthopanax stenophyllus** f. **dilatatus** Rehder, Jour. Arn. Arb. **13:** 338. 1932; Lee, For. Bot. China 870. 1935.

Differs from the species in the mostly 3-foliolate leaves; leaflets oblong-oblanceolate to oblong-obovate, 6–11 cm. long, 2–3.5 cm. wide. Branches unarmed.

SHANSI: Yuan-ch'u District, Shiu-wang-ping, *H. Smith 6563* (HOLOTYPE, AA).

16. **Acanthopanax setulosus** Franch. Nouv. Arch. Mus. Paris. II. **8:** 249. 1886, Pl. David. **2:** 67. 1888; Harms ex Diels, Bot. Jahrb. **29:** 489. 1900; Viguier, Ann. Sci. Nat. IX. Bot. **4:** 41. 1906; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 25. 1918; Chung, Mem. Sci. Soc. China **1:** 188. 1924; Lee, For. Bot. China 870. 1935.

A scandent shrub 3–5 m. tall, the branches densely bristly, with a reflexed prickle at base of petioles, the leaves 5-foliolate, the umbels axillary and solitary. Leaves long-petiolate, the petioles glabrous; leaflets small, chartaceous, sessile, scattered-setose along the veins above, glabrous beneath, ovate-oblong to obovate-oblong, about 2 cm. long and 0.8 cm. wide, the terminal one slightly larger, the apex acute to short-acuminate, the base attenuate, the margins sharply serrate toward the upper half, the lateral nerves about 3 or 4 on each side, inconspicuous, the tertiary veins obscure. Inflorescence of solitary axillary umbels, sometimes with 1 or 2 flowers developed at base of peduncle, the umbels many-flowered, about 2.5 cm. in diameter, the peduncles 2 cm. long, densely long-bristly, the pedicels slender, glabrous, 0.5–1 cm. long. Calyx glabrous, minutely 5-dentate. Petals 5, ovate-oblong, glabrous, 2 mm. long, reflexed. Stamens 5, the filaments 2 mm. long. Ovary 5-celled, the styles 5, short, united below.

SZECHUAN: Moupine, *O. David s. n.* (MEROTYPE, in AA).

This species is close to *Acanthopanax Sieboldianus* Makino, differing in the bristly stems and peduncles. Franchet describes the plant as near to *A. spinosus* (Linn. f.) Miq. He does not mention the number of cells in the ovary. In the type collection the ovary is found to be 5-celled and the number of styles to be 5; thus the plant proves to be quite different from *A. spinosus.* I agree with Viguier, who has noticed the 5-celled ovary and placed it near *A. Sieboldianus,* instead of with Harms, who followed Franchet and placed it near *A. spinosus.*

17. **Acanthopanax Rehderianus** Harms in Sargent, Pl. Wils. **2:** 561. 1916, Mitt. Deutsch. Dendr. Ges. **27:** 20. 1918; Chung, Mem. Sci. Soc. China **1:** 188. 1924; Lee, For. Bot. China 869. 1935.

Eleutherococcus Rehderianus Nakai, Jour. Arn. Arb. **5:** 9. 1924, Fl. Sylvat. Koreana **16:** 30. 1927.

A scandent shrub about 3 m. tall, the branches minutely brownish-puberulous when young, armed with scattered reflexed prickles, the leaves mostly 5-foliolate, the umbels solitary at end of short branches. Prickles usually solitary at base of petioles. Leaves 5- rarely 3- or 4-foliolate, chartaceous, glabrous, shining above, pale beneath, the leaflets subsessile, obovate-oblong to oblanceolate, 2–6 cm. long, 0.8–2 cm. wide, the apex acute to short-acuminate, the base gradually attenuate, the margins crenate-serrate toward apex, the lateral nerves about 5 on each side, conspicuous above, inconspicuous beneath, the tertiary veins obscure. Inflorescence of solitary umbels at the ends of short branches, the umbels glabrous, many-flowered, about 2.5 cm. in diameter, the peduncles 1–2 cm. long, glabrous, the pedicels slender, about 1 cm. long, sometimes with 1 or 2 flowers developed at base of peduncles. Calyx glabrous, the margin subentire. Petals 5, triangular-ovate, 1.5 mm. long, glabrous, reflexed. Ovary 4- or 5-celled, the styles 4 or 5, connate into a short conical column, the stigmas distinct at apex, recurved. Fruit subglobose, slightly angular, about 5 mm. long, the style-column short, about 0.8 mm. long.

HUPEH: No precise locality, *Henry 5930* (G, W); no precise locality, *Wilson 1020* (paratype, AA); south Wushan, *Wilson 1974* (HOLOTYPE, AA, isotype, W).

This species is closely related to *Acanthopanax Wilsonii* Harms, from which it may be distinguished by the stouter and solitary prickles, the broader leaflets with more crenate serrations, the generally shorter peduncles, and the connate styles.

18. **Acanthopanax Sieboldianus** Makino, Bot. Mag. Tokyo **12:** 10. 1898; Rehder, Jour. Arn. Arb. **7:** 243. 1926; Rehder & Wils. op. cit. **8:** 180. 1927; Chien, Contr. Biol. Lab. Sci. Soc. China **3:** 68. 1927.

Acanthopanax spinosus Miq. Ann. Mus. Bot. Lugd.-Bat. **1:** 10. 1863; non *Panax spinosus* Linn. f.

Acanthopanax pentaphyllus Marchal, Bull. Soc. Bot. Belg. **20:** 79. 1881; Chung, Mem. Sci. Soc. China **1:** 188. 1924; non *Aralia pentaphylla* Thunb.

Eleutherococcus pentaphyllus Nakai, Chosen-shokubutsu **1:** 420. 1914, Fl. Sylvat. Koreana **16:** 29. 1927.

Eleutherococcus japonicus Nakai, Jour. Arn. Arb. **5:** 10. 1924, excl. syn. *Acanthopanax japonicus.*

A shrub to 2 m. tall, with slender arching branches unarmed or with a few compressed prickles, 5–7-foliolate leaves, and solitary umbels borne on short lateral branches. Leaves petiolate, partly fascicled on short spurs; petioles glabrous, 3–10 cm. long; leaflets submembranaceous to chartaceous, glabrous, subsessile, obovate to oblong-obovate, 2–3.5 cm. long, 1.5–2 cm. wide, the apex acute, the base cuneate, the margins crenate-serrate, the lateral nerves about 4–6 on each side, subconspicuous, the tertiary nerves inconspicuous on both surfaces.

Inflorescence of glabrous solitary umbels borne on lateral branches, the umbels 2–2.5 cm. in diameter, the peduncles slender, 5–10 cm. long, the flowers dioecious, greenish white, the pedicels 1 cm. long, glabrous. Calyx glabrous, minutely 5-dentate. Petals 5, ovate, 2 mm. long, glabrous. Stamens 5, the filaments 2 mm. long. Ovary 5-celled, the styles 5, connate nearly to apex. Fruit black, subglobose, 6–8 mm. across.

ANHWEI: Wang Shan, *N. P. Ip UN4783* (AA); Wang Shan, *W. C. Cheng 4146* (W); Chien Shan Hsien, Tien Chu Shan, *C. S. Fan and Y. Y. Li 171* (AA).

ADDITIONAL DISTRIBUTION: Japan.

This species is near *Acanthopanax gracilistylus* W. W. Smith, differing in the glabrous leaves, longer peduncles, and the five styles connate nearly to apex.

19. **Acanthopanax gracilistylus** W. W. Smith, Notes Bot. Gard. Edinb. **10:** 6. 1917, **14:** 85. 1924; Nakai, Jour. Arn. Arb. **5:** 4. 1924; Hand.-Maz. Symb. Sin. **7:** 697. 1933; Merr. Lingnan Sci. Jour. **13:** 41. 1934; Lee, For. Bot. China 868. 1935.

Acanthopanax spinosus sensu Hance, Jour. Bot. **18:** 261. 1880; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 341. 1888; Harms ex Diels, Bot. Jahrb. **29:** 489. 1900; Dunn & Tutch. Kew. Bull. Add. Ser. **10:** 119. 1912; Harms & Rehder in Sargent, Pl. Wils. **2:** 562. 1916, pro parte; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 23. 1918, pro parte; Chung, Mem. Sci. Soc. China **1:** 188. 1924; Smith, Notes Bot. Gard. Edinb. **17:** 17, 23. 1929; Courtois, Notes Bot. Chine Mus. Heude **2:** 55. 1933; Lee, For. Bot. China 870. 1935; non Miq.

Acanthopanax Hondae Matsuda, Bot. Mag. Tokyo **31:** 333. 1917; Nakai, Jour. Arn. Arb. **5:** 3. 1924; Rehder, Jour. Arn. Arb. **8:** 180. 1927; Chun, Sunyatsenia **2:** 1. 1934; Cheng ex Pei, Contr. Biol. Lab. Sci. Soc. China **10:** 37. 1935; Lee, For. Bot. China 868. 1935.

Acanthopanax spinosus f. *inerme* Matsuda, Bot. Mag. Tokyo **26:** 281. 1912, syn. nov.

Acanthopanax Hondae var. *inerme* Nakai, Jour. Arn. Arb. **5:** 4. 1924, syn. nov.

Acanthopanax Hondae var. *armatum* Nakai, Jour. Arn. Arb. **5:** 4. 1924; Lee, For. Bot. China 869. 1935, syn. nov.

A scandent shrub 2–3 m. tall, with glabrous spreading branches unarmed or with few reflexed prickles, 5-foliolate leaves, and solitary umbels axillary or at end of very short branches. Prickles if present usually single at base of petioles. Leaves 5-, rarely 3- or 4-foliolate, long-petiolate; petioles 5–8 cm. long; leaflets submembranaceous to chartaceous, subsessile, glabrous, sometimes slightly setose along veins on both surfaces, obovate to oblanceolate, 3–6 cm. long, 1–2.5 cm. wide, the apex acute to short-acuminate, the base cuneate, the margins crenate-serrulate toward apex, the lateral nerves 4 or 5 on each side, subconspicuous, ferruginous-tomentose in axils beneath, the tertiary veins obscure. Inflorescence of solitary umbels, axillary or at end of very short branches, occasionally 2 together, the umbels many-flowered, 2 cm. in diameter, the peduncles 1–2 cm. long, glabrous, elongating in fruit, the pedicels slender, glabrous, 6–10 mm. long. Calyx subentire to minutely 5-dentate. Petals 5, ovate-oblong, acute, 2 mm. long. Stamens 5, the filaments as long as the petals. Ovary 2-celled, the styles 2, slender, distinct, about 2 mm. long. Fruit subglobose, about 6 mm. long, 5 mm. wide, laterally compressed, black, 2-seeded, the styles 2, 2 mm. long, divergent.

SHENSI: Yenan Fu, *W. Purdom 350* (AA, G, W).

HONAN: Lushih, Huing Eul Shan, *J. Hers 41* (AA); Teng Feng Hsien, Yu Tai Shan, *J. Hers 290* (AA); Sunghsien, Shih Tze Miao, *J. Hers 1241* (AA).

KIANGSU: Siao Hsien, Huang Tsang Yu, *J. Hers 1052* (AA); Kiangyin, *A. Allison 181* (G); Bau Hwa Shan, *A. N. Steward 2116* (AA, G, W); Pao Hwa Shan, Chuying, *Tso 355* (AA); Hai Nei, south of Ishing, *Ching & Tso 491* (AA); Pao Hwa Shan, *Chun 2113* (AA); Ishing, *K. Ling UN12295* (G), *UN12553* (G); southern Nanking, Tung Sheng Chiao, *Y. L. Keng 1604* (AA); south of Ishing, Kufu town, *Y. L. Keng 2691* (AA).

CHEKIANG: Ningpo, *D. Macgregor s. n.* (AA); Hangchow, *F. N. Meyer 1473* (AA); Taichow, *R. C. Ching 1300* (AA, G, W); Tientai Shan, *R. C. Ching 1393* (AA, W); Siachu,

R. C. Ching 1791 (AA, LU, W); Mei Ki, *R. C. Ching 4914* (AA); Tientai Shan, *C. Y. Chiao UN14381* (AA, W); Ningpo, *Y. L. Keng 1118* (AA).

ANHWEI: Chiu Hwa Shan, *R. C. Ching 2650* (AA), *2705* (AA, LU); Wang Si-chi, south Chiu Hwa Shan, *R. C. Ching 2864* (AA); Chien Shan Hsien, Tien Chu Shan, *C. S. Fan & Y. Y. Li 203* (AA).

KIANGSI: Dunghwa-schan, inter Schitscheng et Ninghwa, *Wang-Te-Hui 332* (AA); Hongsan, *J. L. Gressitt 1498* (AA).

HUNAN: Lantien, Hsinhwa, *Handel-Mazzetti 594 = 11742* (AA); Changming Hsien, Yang-shan, *C. S. Fan & Y. Y. Li 213* (AA).

HUPEH: No precise locality, *Henry 3406A* (AA, G); Ichang, *Henry 3406* (AA, G, W); no precise locality, *Wilson 1119* (NY), *1224* (G); Changlo Hsien, *Wilson 1973* (AA, G, W); Wan Tsao Shan, *W. Y. Chun 3921* (AA).

YUNNAN: Mengtze, *Henry 10639* (AA, NY); Za Kou, *E. E. Maire 450* (AA), *7463* (NY); Chungtien plateau, *Forrest 13779* (AA); Sung-Kwei, *Forrest 13854* (AA); mountains in the northeast of the Yangtze bank, *Forrest 10411* (AA); Litiping, Yangtze-Mekong Divide, *Forrest 19419* (AA, W); Litiping Range, Mekong-Yangtze divide, east of Weihsi, *J. F. Rock 9407* (AA, NY, W); Wei-si Hsien, *C. W. Wang 63693* (AA); northwestern Likiang, Chi-tien, *R. C. Ching 20481* (AA).

KWEICHOW: Kweiting, *Y. Tsiang 5489* (NY); Tunghaushan, Ihwang, *Y. Tsiang 1004* (NY); Tsungyi Hsien, Liang Fen Yah, *Steward, Chiao & Cheo 258* (AA, NY, W); Da-po-son, Tsingchen, *S. W. Teng 90353* (AA).

KWANGTUNG: Yingtak, Tai Chuen, *H. Y. Liang 60946* (AA); Sungyi, Youk Chong Ping, *C. Wang 32263* (AA); Tsengshing District, Naam Kwan Shan, *W. T. Tsang 20083* (AA, NY), *20199* (AA, LU, NY), *20393* (AA, NY); Lung-men District, Naam Kuan Shan, Sheung Ping Village, *W. T. Tsang 25375* (AA).

This Chinese species is now considered by most authors to be distinct from the Japanese *A. spinosus* Miq. I agree with Handel-Mazzetti that *A. gracilistylus* and *A. Hondae* Makino are synonymous. This species resembles *A. Sieboldianus* Makino in general appearance, but is readily distinguished from the latter by its two slender and free styles. The species is of very wide distribution in China. Variations in leaf-sizes are frequent. The branches vary from armed to unarmed. It is very difficult to differentiate these as separate forms, as quite frequently only one or several scattered prickles may be found on a specimen. It is hard to ascertain that a plant is totally unarmed if it is represented by merely a twig in the herbarium. This character alone certainly does not warrant considering the proposal of varieties based on the presence or absence of prickles. I have placed such specimens under the typical form.

Acanthopanax nodiflorus Dunn and *A. villosulus* Harms are identical with *A. gracilistylus* in all characters except the indumentum on the leaves. It seems desirable to reduce them to varieties of the latter.

19a. **Acanthopanax gracilistylus** var. **pubescens** (Pampanini) comb. nov.

Acanthopanax spinosus var. *pubescens* Pampanini, Nuov. Giorn. Bot. Ital. II. **17**: 678. 1910; Lee, For. Bot. China 870. 1935.

Leaflets glabrous above, pubescent especially along the nerves beneath.

HUPEH: *Silvestri 1598, 1600* (SYNTYPES of *Acanthopanax spinosus* Miq. var. *pubescens* Pampanini, photos in AA, NY); no precise locality, *Wilson 1030* (NY); Tung-chien Hsien, *H. C. Cheo UN18247* (NY).

19b. **Acanthopanax gracilistylus** var. **villosulus** (Harms) comb. nov.

Acanthopanax villosulus Harms in Sargent, Pl. Wils. **2**: 562. 1916, Mitt. Deutsch. Dendr. Ges. **27**: 25. 1918; Chung, Mem. Sci. Soc. China **1**: 188. 1924; Lee, For. Bot. China 871. 1935.

Acanthopanax spinosus Pavolini, Nuov. Giorn. Bot. Ital. II. **15**: 418. 1908; non Miq.

Leaflets glabrous to slightly setulose above, villose and slightly setulose along the nerves beneath.

HUPEH: Payung Hsien, *Wilson 379A* (HOLOTYPE of *Acanthopanax villosulus* Harms, AA, isotypes, G, W); Chienshi Hsien, *Wilson 957* (paratype, NY).
SZECHUAN: *Henry 5890* (G, W), cultivated.

19c. **Acanthopanax gracilistylus** var. **nodiflorus** (Dunn) comb. nov.

Acanthopanax nodiflorus Dunn, Jour. Bot. **47**: 199. 1909, Jour. Linn. Soc. Bot. **39**: 413. 1911; Dunn & Tutch. Kew Bull. Add. Ser. **10**: 119. 1912; Harms, Mitt. Deutsch. Dendr. Ges. **27**: 24. 1918; Chung, Mem. Sci. Soc. China **1**: 187. 1924.

Leaflets scabrid-setulose above, scabrid to pubescent beneath.

KWANGTUNG: Yangshan District, Yang Shan, *T. M. Tsui 531* (AA, W), *751* (AA); Yu-yuen, *S. P. Ko 52789* (AA).
KWANGSI: Sui-luk District, mountains surrounding Pa Lan Village, *W. T. Tsang 21930* (AA).

20. **Acanthopanax trifoliatus** (Linn.) Merr. Philip. Jour. Sci. **1**: Suppl. 217. 1906; Schneider, Ill. Handb. Laubholzk. **2**: 427. 1909; Rehder in Bailey, Stand. Cycl. Hort. **1**: 193. 1914; Harms & Rehder in Sargent, Pl. Wils. **2**: 563. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27**: 26. 1918; Chung, Mem. Sci. Soc. China **1**: 188. 1924; Nakai, Jour. Arn. Arb. **5**: 1. 1924; Merr. Lingnan Sci. Jour. **5**: 140. 1927; W. W. Smith, Notes Bot. Gard. Edinb. **17**: 172, 272. 1929–30; McClure, Lingnan Univ. Sci. Bull. **3**: 31. 1931; Hand.-Maz. Symb. Sin. **7**: 698. 1933, Beih. Bot. Centralbl. **52B**: 172. 1934; Lee, For. Bot. China 871. 1935; Merr. Trans. Am. Ph. Soc. II. **24**(2): 291. 1935, Jour. Arn. Arb. **18**: 71. 1937.

Zanthoxylum trifoliatum Linn. Sp. Pl. 270. 1753.

Panax aculeatus Ait. Hort. Kew ed. 1. **3**: 448. 1789; DC. Prodr. **4**: 252. 1830; G. Don, Gen. Syst. **3**: 384. 1834.

Plectronia chinensis Lour. Fl. Cochinch. 162. 1790, ed. Willd. 201. 1793.

Panax Loureiranus DC. Prodr. **4**: 252. 1830.

Aralia trifoliata Meyen, Reise **2**: 332. 1835, *nomen nudum;* Walp. Nova Acta Acad. Nat. Cur. 14. Suppl. **1**: 348. 1843; K. Koch, Wochenschr. Gärtn. Pflanzenk. **2**: 366. 1859.

Acanthopanax aculeatus H. Witte, Annal. Hort. Bot. Pays-Bas **4**: 89. 1861; Seem. Jour. Bot. **5**: 238. 1867, Revis. Heder. 86. 1868; Hance, Jour. Linn. Soc. Bot. **13**: 105. 1867; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 726. 1879; Franch. Pl. David. **1**: 146. 1884; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 339. 1888; Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 50. 1894; Harms ex Diels, Bot. Jahrb. **29**: 489. 1900; Dunn & Tutch. Kew Bull. Add. Ser. **10**: 119. 1912; Viguier in Lecomte, Fl. Gén. Indo-Chine **2**: 1166. 1923; Courtois, Notes Bot. Chine Mus. Heude **2**: 55. 1933.

Acanthopanax sepium Seem. Jour. Bot. **5**: 239. 1867, Revis. Heder. 86. 1868.

A scandent shrub or climber, about 2–7 m. tall, with scattered prickles on the branches and petioles, the leaves commonly 3-foliolate, the umbels 3–10 together in terminal racemes or compound umbels. Prickles short, sharp-pointed, recurved at tips, broadened and elongated at base, usually present at base of petioles, single or in pairs. Leaves commonly 3-foliolate, rarely 1–5-foliolate, long- or short-petiolate; petioles glabrous, slightly prickly or not, 2–6 cm. long; leaflets chartaceous, short-petiolulate, glabrous on both surfaces, sometimes very slightly setose along the midrib and veins above, elliptic-ovate to elliptic-oblong, 4–8 cm. long, 2.5–4.5 cm. wide, the apex acuminate, the base cuneate, the lateral ones sometimes slightly oblique, the margins generally serrulate, the lateral nerves about 5–7 on each side, conspicuous on both surfaces, the tertiary veins inconspicuous; petiolules 2–8 mm. long, the median ones longer, the lateral ones sometimes subsessile. Inflorescence of umbels, about 3–10 together in terminal racemes or compound umbels, rarely solitary, the umbels few- to many-flowered, the peduncles glabrous, 2–7 cm. long, the pedicels slender, glabrous, about 1 cm. long. Calyx glabrous, 1.5 mm. long, slightly 5-dentate. Petals 5, triangular, 2 mm. long, glabrous on both surfaces, reflexed. Stamens 5, the filaments 3 mm. long. Ovary mostly 2-celled, the styles 2, connate to middle. Fruit rounded, laterally compressed, 3–4 mm. long, the style-column 1.5 mm. long, bifid to middle.

CHEKIANG: Kai-hwa Hsien, *H. H. Hu 508* (AA); Chiangshan, Kwangyintang, *R. C. Ching 2590* (AA, LU).

KIANGSI: Kiennan District, Soi Hang Cheung, near Tung Lei Village, *S. K. Lau 4218* (AA, W); Lungnan District, Oo Chi Shan, near Lam Uk Tung Village, *S. K. Lau 4593* (AA, W).

HUNAN: Hsinhwa, Hsikwangshan, *Handel-Mazzetti 796* (AA); Sinning Hsien, Maling-tung, *C. S. Fan & Y. Y. Li 591* (AA).

HUPEH: Ichang, *Henry 2253* (AA, G), *2253A* (W), *2702* (G); Nan-to, *Henry 2639* (G, NY); no precise locality, *Wilson 842* (NY), *1613* (NY); Ichang, *Wilson 399* (AA, G, W), *399A* (AA); Po Moh Ring, *R. C. Ching 3537* (AA); Chienshih Hsien, *H. C. Chow 1549* (NY), *1698* (AA, NY).

SZECHUAN: No precise locality, *E. Faber 39 = 265* (NY); inter Mosoying et Huili, *Handel-Mazzetti 5639* (AA); Chung Hsien, *W. P. Fang 487* (AA); Mt. Omei, *W. P. Fang 3392* (AA, NY); Omei Hsien, *W. P. Fang 3847* (AA); Lu Hsien, *W. P. Fang 9772* (AA); Kuan Hsien, *S. S. Chien 5760* (AA); O-pien Hsien, *Y. S. Liu 2033* (AA).

SIKANG: Ya-an, *C. Y. Chiao 1162* (AA).

YUNNAN: No precise locality, *Forrest 11713* (AA), *11748* (AA); Shweli-Salwin divide, *Forrest 16046* (AA), *17554* (AA); Szemao, *Henry 12561* (AA, W); no precise locality, *E. E. Maire 2918* (NY, W); Sing-Schouan, *E. E. Maire 2988* (NY); Tali, *C. Schneider 2793* (AA, G, W); between Kambaiti and Tengyueh, via Kuyung, *J. F. Rock 7570* (AA, W); west of Mekong, en route from Pingpo to Youngchang and Tengyueh, Salween watershed, *J. F. Rock 6969* (AA, W); Che-tse-lo, *H. T. Tsai 58512A* (AA); Shang-pa, *H. T. Tsai 58923* (AA), *58926* (AA); Meng-bang, Jenn-yeh Hsien, *C. W. Wang 80318* (AA); Mienning, Wenpishan, *T. T. Yü 17766* (AA), *17767* (AA).

KWEICHOW: Tienfang, *Handel-Mazzetti 297* (AA); Pachai, *Y. Tsiang 6123* (NY); Kweiyang, *Y. Tsiang 8496* (NY); Liang Feng Yoh, *Steward, Chiao & Cheo 126* (AA); Kiangkou Hsien, Miao Wang, *Steward, Chiao & Cheo 566* (AA, W); Tsi-shou, Chengfeng, *S. W. Teng 90787* (AA).

KWANGSI: Lan Lo, east of Lin Yen, *R. C. Ching 6644* (AA); Yeo Mar Shan, north of Hin Yen, *R. C. Ching 7115* (LU, NY); Bako Shan, west of Poseh, *R. C. Ching 7439* (AA, NY, W).

KWANGTUNG: Canton, Honam Island, *Merrill 10057* (NY), *C. Levine CCC182* (AA), *CCC558* (AA), *CCC1235* (W); Nan Shung, *W. Y. Chun 5714* (AA); between Wu Tung and Chang Kiang, *W. Y. Chun 775* (AA); Lantau Island, Kai Yih Shan, *McClure LU13085,* and Tai Ue Shan, *W. T. Tsang 16532,* two collections on same sheet and label (AA, W); Yun-fou District, Chiao-tuo-ying, *C. Wang 577* (AA); Loting, Sanhaiting, *Y. Tsiang 1130* (AA); Lochong, Jui-feng, *Y. Tsiang 1231* (AA); Canton, Peiyungshan, *Y. Tsiang 1606* (AA); Lofoushan, *Y. Tsiang 1686* (AA); Canton, Whampoa, *Y. Tsiang 3344* (NY); Canton, Lung Yen Tung, *W. Y. Chun 7639* (AA, NY); Wung Yuen District, *S. K. Lau 638* (AA, NY); Wung Yuen District, Wang Chuk I, Tsing Wan Shan, *S. K. Lau 2050* (AA); Loh Chang District, Mu Shan, Tai Hang, *W. T. Tsang 20837* (AA, NY); Hweiyang District, Ling Fa Shan, Sam Hang Shek T'an Village, *W. T. Tsang 25860* (AA).

HAINAN: Hoichow, *F. A. McClure CCC7544* (AA, LU).

FUKIEN: Diongloh Hsien, Meihwa, *H. H. Chung 2002* (AA); Foochow, Wooshihshan, *H. H. Chung 2417* (AA); Amoy, *H. H. Chung 4555* (AA); Kushan, *H. H. Chung 7625* (AA, LU); Foochow University and vicinity, *Tang Siu Ging 5560* (LU); Kushan Monastery, *Tang Siu Ging 5820* (AA, LU); Foochow, Hung Sang Gio, *Tang Siu Ging 7088* (AA).

ADDITIONAL DISTRIBUTION: From the eastern Himalayan region to Japan and southward to Indo-China and to Luzon in the Philippine Islands.

A species widely distributed in China. The leaves are variable in size, shape, and serrations. The type of *Zanthoxylum trifoliatum* Linn., the basis of the species, was a specimen collected in the vicinity of Canton, China.

20a. **Acanthopanax trifoliatus** var. **setosus** var. nov.

A typo differt foliolis supra ad costam nervosque plus minusve dense setosis, margine dupliciter setoso-serratis, inflorescentiis plerumque pauciumbellatis.

YUNNAN: Mengtze, *Henry 10158* (NY), *10158A* (NY), *11158* (AA); Szemao, *Henry 12770* (AA, NY, W); Ping-pien Hsien, *H. T. Tsai 61908* (AA).

KWEICHOW: Chenfeng, *Y. Tsiang 4770* (NY).

KWANGSI: Shih Wan Tai Shan, *H. Y. Liang 69974* (TYPE, AA), Aug. 5, 1937; Hing-on District, Wah Kong, *Z. S. Chung 83677* (AA).

KWANGTUNG: Yang-shan District, Yang Shan, south of Linchow, *T. M. Tsui 697* (AA, NY, W).

Among the specimens cited above under the typical form of the species, a number have the leaflets slightly setose. However, these leaflets are simple-serrate instead of double- and setose-serrate. They apparently represent transitions between the species and this variety. The variety *setosus* may later be found to be worthy of specific rank.

21. **Acanthopanax Wardii** W. W. Smith, Notes Bot. Gard. Edinb. **10**: 7. 1917, **17**: 101. 1929.

Acanthopanax ternatus Rehder, Jour. Arn. Arb. **2**: 124. 1920; Chung, Mem. Sci. Soc. China **1**: 188. 1924; Hand.-Maz. Symb. Sin. **7**: 698. 1933; Lee, For. Bot. China 871. 1935, syn. nov.

A shrub 1–3 m. tall, the glabrous branches unarmed or bearing a few scattered prickles with 3-foliolate leaves, and terminal umbels commonly 4–7 arranged together. Leaves petiolate; petioles 2–4 cm. long; leaflets chartaceous, sessile to subsessile, glabrous, green above, pale beneath, ovate or oblong-ovate to obovate, 2–5 cm. long, 1–3 cm. wide, the apex acute, the base broad-cuneate, the margins coarsely 1–7-dentate to entire, the lateral nerves about 5 or 6 on each side, the nerves and tertiary veins slightly impressed above, inconspicuous beneath. Inflorescence of umbels, terminal, commonly 4–7 arranged together, occasionally solitary, the umbels many-flowered, the peduncles 1–2 cm. long, glabrous, with a tuft of tomentum at tip where the pedicels are inserted, the pedicels 5–10 mm. long, slender, glabrous. Calyx glabrous, 1 mm. long, the margin minutely dentate. Petals 5, triangular-ovate, acute, 2 mm. long, glabrous on both surfaces. Stamens 5, the filaments 1.75 mm. long. Ovary 2-celled, the styles 2, erect, 0.5 mm. long, connate at base. Fruit suborbicular, much compressed, 6–7 mm. in diameter, 3 mm. thick, 2-seeded, the style-column about 1.5 cm. long, bifid and reflexed at tip.

SZECHUAN: Drogochi, *H. Smith 4536* (AA); Hsu-tsing, *H. Smith 4753* (AA).

SIKANG: Mekong, Tsa-wa-rung, *C. W. Wang 65469* (AA), *66193* (AA).

YUNNAN: Mountains near Tsin-kou, on the Mekong River, Abbé Monbeig in 1905, plant grown from seed sent by Maurice L. de Vilmorin to the Arnold Arboretum, 1911, *4280* (AA); also specimens from this plant collected in the Arnold Arboretum Oct. 13, 1917, Oct. 14 and 26, 1918 and Oct. 13, 1919 (AA); Mekong, inter vicos Lota-Tanschan et Tsedjrong, *Handel-Mazzetti 7973* (AA); mountains above Tseku and Tsechung, Mekong-Salween watershed, *J. F. Rock 10365* (AA, NY, W); Atungtze, Huann-fu-ping, *C. W. Wang 69179* (AA), *69180* (AA); Atungtze, Hungpoh, *T. T. Yü 7980* (AA), *7986* (AA).

This species closely simulates *Acanthopanax lasiogyne* Harms in appearance. It may be distinguished from the latter especially by its glabrous calyx and pedicels and the greater length of pedicels. It is also related to *A. trifoliatus* (Linn.) Merr., from which it may be distinguished by the more or less straight prickles, unarmed petioles, the shorter peduncles and pedicels, and the more compressed fruits.

22. **Acanthopanax evodiaefolius** Franch. Jour. de Bot. **10**: 306. 1896, Pl. Sin. Ecl. Prim. 26. 1879; Harms ex Diels, Bot. Jahrb. **29**: 489. 1900; Lévl. Cat. Pl. Yun-Nan 11. 1915; Harms & Rehder in Sargent, Pl. Wils. **2**: 563. 1916; Harms, Mitt. Deutsch. Dendr. Ges. **27**: 29. *t. 4, fig. a–c.* 1918; Chung, Mem. Sci. Soc. China **1**: 187. 1924; Rehder, Jour. Arn. Arb. **8**: 181. 1927; Chien, Contr. Biol. Lab. Sci. Soc. China **3**: 68. 1927; W. W. Smith, Notes Bot. Gard. Edinb. **17**: 101, 115, 125. 1929; Hand.-Maz. Symb. Sin. **7**: 698. 1933; Lee, For. Bot. China 865. 1935.

Evodiopanax evodiaefolius Nakai, Jour. Arn. Arb. **5**: 8. 1924.

A shrub or tree, 3–12 m. tall, glabrous, unarmed, with 3-foliolate leaves and terminal umbels, the umbels solitary or few together forming an umbellate panicle.

Leaves usually clustered at ends of long or short branches, petiolate; petioles terete, glabrous, 5–10 cm. long, with a tuft of ferruginous tomentum at tip where the leaflets are attached; leaflets chartaceous to coriaceous, uneven, the lateral ones sessile, oblong-ovate to ovate-lanceolate, the median ones very short-petiolulate or subsessile, ovate to oblong-lanceolate, the base attenuate, the apex more or less long-acuminate, the margin subentire to serrulate, 8–10 cm. long, 2.5–3 cm. wide, the lateral nerves about 6–8 on each side, distinct on both surfaces, with a tuft of tomentum in axils beneath, the tertiary veins conspicuous on both surfaces. Inflorescence of terminal umbels, commonly solitary or few together forming an umbellate panicle, glabrous, the umbels few- to many-flowered, the peduncles slender, glabrous, 2–8 cm. long, the pedicels glabrous, about 1 cm. long, elongating in fruit. Calyx glabrous, 1 mm. long, the margin entire. Petals 5, oblong, acute, 2 mm. long, reflexed, glabrous on both surfaces. Stamens 5, the filaments 2 mm. long. Ovary 2–4-celled, the disk more or less flattened. Styles 2–4, united below, distinct above the middle. Fruit globose, 3–4 mm. across, slightly 2–4-angled, the pedicels 1–2.5 cm. long, the style-column 2 mm. long, 2–4-fid above the middle.

SHENSI: Taipei Shan, *G. Fenzel 715* (AA).

CHEKIANG: No precise locality, *Chekiang Univ. LU77287* (LU); Tien-tai Shan, *R. C. Ching 1488* (AA, W, LU), *1534* (AA, W); Chien-yuan, *R. C. Ching 2315* (AA, G, NY, W); Tien-moo Shan, *R. C. Ching 4996* (AA); Chien-yuang, *Y. L. Keng 353* (AA); Tien-tai Shan, *Y. L. Keng 1063* (AA); west Tien-mu, *H. H. Hu 1646* (AA); Tien-mu Shan, *T. N. Liou 183* (NY).

ANHWEI: Tien-tai, Chu-hwa Shan, *R. C. Ching 2814* (NY); Chang-zou Shan, west of Wu Yuan, *R. C. Ching 3218* (AA, LU); Chiu-hwa Shan, *S. C. Sun 1466* (AA, NY).

KIANGSI: Kuling, *L. H. Bailey s. n.* (AA); *C. Y. Chiao UN18629* (NY, W); Lushan, *H. H. Chung & S. C. Sun 528* (AA), *H. H. Hu 2365* (LU).

HUPEH: Western Hupeh, *Wilson 1142* (NY, W); western Hupeh, Hsin-tien-tsze, *W. Y. Chun 4060* (AA).

SZECHUAN: Wen-chuan Hsien, Wa-ssu Country, *Wilson 4204* (AA, W); Muli, mountains of Kulu, *J. F. Rock 18051* (AA, W); Siga Shan, *J. F. Rock 23869* (AA, NY), *24394* AA, NY); O-Pien Hsien, *Y. S. Liu 2194* (AA).

SOUTHEASTERN TIBET: Mt. Kenyichunpo and region of Champutong, Salween-Irrawadi watershed, *J. F. Rock 11651* (AA, W); no precise locality, *F. K. Ward 10068* (AA); Solo-la, *J. F. Rock 22652* (AA).

YUNNAN: Lichiang, *Forrest 5616* (W); no precise locality, *Forrest 6887* (AA), *10235* (AA); Lichiang, *C. Schneider 2471* (AA), *3288* (AA, G); Kouty, *Simeon Ten 468* (AA), *508* (AA, W); Yangtze watershed, western slopes of Likiang Snow Range, *J. F. Rock 4133* (AA, NY, W); between Likiang, Youngming and Youngpei, *J. F. Rock 5106* (AA, W), *5192* (AA, W); Lotueshan, mountains of Labako, west of the Yangtze bend at Shiku, *J. F. Rock 9512* (AA, NY, W); mountains above Tseku and Tsehchung, Mekong-Salween watershed, *J. F. Rock 10363* (AA, W); Lao-chun Shan, southwest of Shiku and the Yangtze, *J. F. Rock 25404* (AA); Liang Shan, Lami, *H. T. Tsai 51246* (AA); Shang-pa Hsien, *H. T. Tsai 54453* (AA), *56505* (AA); no data, *H. T. Tsai 57212* (AA); Pi-lo Shan, Che-tse-lo, *H. T. Tsai 58091* (AA); Wei-si Hsien, *H. T. Tsai 57841* (AA), *59693* (AA), *59759* (AA), *59841* (AA), *59932* (AA), *59960* (AA); Wei-si Hsien *C. W. Wang 63907* (AA); Chi-na-tung, Cham-pu-tung, *C. W. Wang 66714* (AA); Shi-gi-tung, Champutung, *C. W. Wang 67424* (AA); Champutung, Bar-ru-lah, Salween-Chiuchiang Divide, *C. W. Wang 67550* (AA); Wei-si Hsien, *C. W. Wang 67716* (AA); Atungze, Dokerla, *T. T. Yü 7852* (AA); Atungze, Mt. Kaakerpu, *T. T. Yü 8426* (AA), *10488* (AA); Atungze, Mt. Miyetzimu, *T. T. Yü 10588* (AA); Shunning, Hila, Wumulung, *T. T. Yü 16661* (AA); Chenkang Snow Range, Hsiaoshuishan, *T. T. Yü 17207* (AA); Kuikiang Valley, Taron, Chiengen, *T. T. Yü 19445* (AA); Salwin-Kiukiang Divide, Lung-guailaka, *T. T. Yü 20258* (AA); northern flank of Haba Snow Range, *K. M. Feng 1098* (AA); northwest of Likiang, *R. C. Ching 20524* (AA); northwest Likiang, Tamichung, *R. C. Ching 20510* (AA); Litiping, between Likiang and Weihsi, *R. C. Ching 22091* (AA).

KWEICHOW: Fan Ching Shan, Lao Shan, *Steward, Chiao & Cheo 478* (AA, NY, W).

KWANGSI: No data, *C. Wang 39573* (AA); Tsu Yeun District, *Z. S. Chung 83561* (AA).

This distinct species is easily recognized by being unarmed, its 3-foliolate leaves, the tuft of tomentum at the insertion of the leaflets to the petiole, and the tomentum in the axils of lateral veins on the lower surface of the leaflets. The leaflets are very variable in size and sometimes also in shape. The pedicels are also variable in length, especially in fruit.

22a. **Acanthopanax evodiaefolius** var. **gracilis** W. W. Smith, Notes Bot. Gard. Edinb. **10:** 6. 1917; Chung, Mem. Sci. Soc. China **1:** 189. 1924; Hand.-Maz. Symb. Sin. **7:** 698. 1933; Lee, For. Bot. China 866. 1935; Hand.-Maz. Oesterr. Bot. Zeitschr. **88:** 304. 1939.

Leaflets 3–5, mostly 5, ferruginous-tomentose in the axils of lateral nerves beneath; umbels few-flowered, the peduncles slender, the pedicels in fruit 1–3.5 cm. long.

SZECHUAN: Molien, *C. Schneider 1427* (AA).

YUNNAN: Lichiang Range, *Forrest 11282* (ISOTYPE, AA); no data, *T. T. Yü 11766* (AA).

KWANGSI: Shang-sze District, Shap Mam Taai Shan, near Hoh Lung Village, *W. T. Tsang 22632* (AA); Liow Shiang, Tseungyuen, *C. Wang 39609* (AA); Yao Shan, *C. Wang 40233* (AA); Tsu Yuen District, *Z. S. Chung 83310* (AA), *83451* (AA).

22b. **Acanthopanax evodiaefolius** var. **ferrugineus** W. W. Smith, Notes Bot. Gard. Edinb. **10:** 6. 1917, **14:** 111. 1924, **17:** 166. 1930; Chung, Mem. Sci. Soc. China **1:** 187. 1924; Hand.-Maz. Symb. Sin. **7:** 698. 1933; Lee, For. Bot. China 866. 1935.

Evodiopanax evodiaefolius var. *ferrugineus* Nakai, Jour. Arn. Arb. **5:** 8. 1924.

Leaflets ferruginous-tomentose on lateral nerves beneath; peduncles and pedicels ferruginous-tomentose.

SOUTHEASTERN TIBET: Tsarung, Solo-la, *J. F. Rock 22283* (AA, NY, W).

YUNNAN: Shweli-Salween Divide, *Forrest 12068* (ISOTYPE, AA), *15922* (AA); no precise locality, *T. T. Yü 8581* (AA); Shunning, Snow Range, *T. T. Yü 15980* (AA).

Doubtful and Excluded Species

1. **Eleutherococcus melanocarpa** Lévl. Bull. Acad. Géogr. Bot. **24:** 282. 1914, Cat. Pl. Yun-Nan 11. 1915. = *Aralia sp.* (See Harms, Mitt. Deutsch. Dendr. Ges. **27:** 34. 1918).

2. **Eleutherococcus Bodinieri** Lévl. Bull. Acad. Géogr. Bot. **24:** 144. 1914, Fl. Kouy-Tchéou 33. 1914. = *Schefflera sp.* (See Rehder, Jour. Arn. Arb. **15:** 115. 1934).

3. **Acanthopanax Esquirolii** Lévl. Bull. Acad. Géogr. Bot. **24:** 143. 1914, Fl. Kouy-Tchéou 33. 1914. = *Schefflera sp.* (See Rehder, Jour. Arn. Arb. **15:** 114. 1934).

4. **Acanthopanax sp.**

Eleutherococcus Koreanus Nakai, Fl. Sylvat. Koreana **16:** 32. *t. 7.* 1927; Nakai, Honda, Satake, & Kitagawa, Rep. 1st. Sci. Exp. Manch. **6**(6): 35. 1936; non *Acanthopanax Koreanus* Nakai.

This species was first described by Nakai from Korea and later recorded by him as also found in Jehol. His description and illustration suggest *Acanthopanax senticosus* (Rupr. & Maxim.) Harms, and I suspect that the two are identical. However, in the absence of authentic specimens, I leave it as *Acanthopanax sp.*

XIII. KALOPANAX Miquel

Kalopanax Miq. Ann. Mus. Bot. Lugd.-Bat. **1:** 10. 1863.

Shrub or tree, the branches stout, armed with short, broad-based prickles. Leaves palmately lobed, serrulate. Flowers perfect, in umbels, the umbels racemosely arranged in large, terminal, compound panicles; pedicels not articulate under the flower. Calyx-margin minutely 5-dentate. Petals 5, valvate. Ovary 2-celled, the styles united into a column. Fruit subglobose, 2-seeded; seeds flat; endosperm uniform.

One species in eastern Asia.

KEY TO SPECIES AND VARIETIES

A. Leaves shallowly lobed, the lobes ovate.
B. Leaves about 9–25 cm. across, sparsely pubescent beneath .....1. *K. pictus.*
BB. Leaves about 20–40 cm. across, densely pubescent beneath.
1a. *K. pictus* var. *magnificus.*
AA. Leaves deeply lobed, the lobes oblong-lanceolate .....1b. *K. pictus* var. *Maximowiczii.*

1. **Kalopanax pictus** (Thunb.) Nakai, Fl. Sylvat. Koreana **16:** 34. *t. 8, 9, 10.* 1927.

Acer pictum Thunb. Nova Acta Reg. Soc. Sci. Upsal. **4:** 36, 40. 1783.

Acer septemlobum Thunb. Fl. Jap. 161. 1784.

Aralia palmata Lour. Fl. Cochinch. 187. 1790, ed. Willd. 233. 1793; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 338. 1888.

Panax ricinifolius Sieb. & Zucc. Abh. Akad. Muench. **4**(2): 199. 1845 (Fl. Jap. Fam. Nat. **1:** 91).

Brassaiopsis ricinifolia Seem. Jour. Bot. **2:** 291. 1864, Revis. Heder. 18. 1868.

Tetrapanax ricinifolius K. Koch, Wochenschr. Gärtn. Pflanzenk. **2:** 371. 1859.

Acanthopanax ricinifolius Seem. Jour. Bot. **6:** 140. 1868, Revis. Heder. 86. 1868; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 340. 1888; Harms, Mitt. Deutsch. Dendr. Ges. **27:** *t. 5, f. A–D.* 1918; Chung, Mem. Sci. Soc. China **1:** 188. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **17:** 379. 1930; Courtois, Notes Bot. Chine Mus. Heude **2:** 55. 1933; Lee, For. Bot. China 866. 1935.

Kalopanax ricinifolius Miq. Ann. Mus. Bot. Lugd.-Bat. **1:** 16. 1863; Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 51. 1894; Harms ex Diels, Bot. Jahrb. **29:** 489. 1900; Yabe, Enum. Pl. Manch. 98. 1912; Harms & Rehder in Sargent, Pl. Wils. **2:** 564. 1916; Nakai, Jour. Arn. Arb. **5:** 11. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **17:** 93, 180, 234. 1929–30; Merr. Lingnan Sci. Jour. **7:** 318. 1931.

Acanthopanax septemlobus Koidz. Bot. Mag. Tokyo **34:** 306. 1925; Hand.-Maz. Symb. Sin. **7:** 699. 1933; Merr. Trans. Am. Phil. Soc. II. **24**(2): 292. 1935; Cheng ex Pei, Contr. Biol. Lab. Sci. Soc. China **10:** 37. 1935.

Kalopanax ricinifolius var. *typicus* Nakai, Jour. Arn. Arb. **5:** 12. 1924.

Kalopanax ricinifolius var. *chinensis* Nakai, Jour. Arn. Arb. **5:** 13. 1921, syn. nov.

Kalopanax pictus var. *typicus* Nakai, Fl. Sylvat. Koreana **16:** 35. 1927.

A sparingly branched tree to 30 m. tall, with palmately 5–7-lobed serrulate leaves, and flowers in umbels, with slender pedicels and peduncles, racemosely arranged in the inflorescence. Branches with stout, short, broad-based prickles. Leaves chartaceous, long-petiolate, suborbicular, 9–25, sometimes to 35 cm. across, with broadly triangular-ovate to oblong-ovate acuminate lobes, the margins serrulate, dark green above and glabrous or nearly so, light green beneath and usually sparsely pubescent when young, the lateral nerves subconspicuous above, projecting beneath; petioles 8–50 cm. long. Inflorescence a large compound terminal panicle 20–30 cm. across, the flowers 5-merous, perfect, in racemosely arranged umbels on branches of panicle, the umbels many-flowered, about 1.5 cm. in diameter, the peduncles slender, 2–3.5 cm. long, the pedicels slender, 5 mm. long, slightly pubescent. Calyx glabrous, the margin minutely 5-dentate. Petals triangular-ovate, 2 mm. long. Stamens 5, the filaments very slender, 5 mm. long. Ovary 2-celled, the disk convex, the styles united into a single column, the stigmas 2, slightly capitate. Fruit subglobose, 4 mm. across, bluish-black, the style-column persistent, slender, 2 mm. long, bifid at tip.

HONAN: Tsi-yuan Hsien, Tien Tai Shan, *J. Hers 1779* (AA).
HOPEI: Eastern Tomb, *C. F. Li 10046* (NY).
MANCHURIA: No precise locality, *Maximowicz s. n.* (G, NY, W).
SHANGTUNG: Chefoo, *N. H. Cowdry 560* (AA); Tsingtao, First Park, *C. Y. Chiao 2568* (AA, NY, W); Lao Shan, Pai Chin Shui, *C. Y. Chiao 2752* (AA, NY); Lao Shan, Hwa Yin Sze, *C. Y. Chiao 2783* (AA, NY, W).
KIANGSU: Bow-hwa Shan, *W. Y. Chun 4256* (AA); Tan Yang, Mao Shan, *Tso 1805* (AA); Nanking, *C. Y. Chiao UN14709* (AA); Nanking, Kihshan, *Y. L. Keng 1956* (AA); Nanking, Spirit Valley, *C. Y. Chiao UN18931* (NY, W).

CHEKIANG: No precise locality, *Barchet 194* (W), *K. K. Tson 4044* (NY); Ningpo Mountains, *Faber 44* (AA); Tien Tai Shan, Huating, *C. Y. Chiao UN14477* (W); Tien Tai Shan, *C. Y. Chiao UN14707* (W), *Y. L. Keng 1067* (AA).

ANHWEI: En route Chung Mei Hoh-Tai Hoh Hau, *F. A. McClure 3996 = LU15346* (LU).

KIANGSI: Kiukiang, *G. Shearer s. n.* (G).

HUNAN: Vicum Tungdjiapai prope minas Hsikwangschan distr. Hsinhwa, *Handel-Mazzetti 811 = 2629* (AA); Shinning Hsien, Ma-lin-tung, *C. S. Fan & Y. Y. Li 604* (AA).

HUPEH: Ichang, *Henry 2246* (G), *2246A* (W), *3101* (G); no precise locality, *Henry 4573* (G, NY); western Hupeh, *Wilson 1680* (NY); Tien-scian Hsien, *Silvestri 1601* (AA); Hsing-shan Hsien, *Wilson 602* (AA, W); Ichang, *Wilson 1963* (AA, G, NY, W); Hsu Tien Tsze, *W. Y. Chun UN4389* (W); Chien-shih Hsien, *H. C. Chow 1713* (AA, NY).

SZECHUAN: District of Tschen-keou-tin, *R. P. Farges s. n.* (AA, NY, W); Wa-shan, *Wilson 1962* (AA, W); An Hsien, *W. P. Fang 5551* (AA); Tien-chuan Hsien, *W. P. Fang 3406* (AA); Lo-shan Hsien, *F. T. Wang 23635* (AA); Kuan Hsien, *Y. S. Liu 1916* (AA).

SIKANG: Near Shaw-kwan, *C. Y. Chiao 2039* (AA).

SOUTHEASTERN TIBET: Tsarong, *Forrest 19051* (AA); Mt. Kenyichunpo and region of Champutong, Salween-Irrawadi watershed, *J. F. Rock 11521* (AA, W).

YUNNAN: Mengtze, *Henry s. n.* (W); Likiang, *Handel-Mazzetti 6840* (AA); Mekong, *Handel-Mazzetti 10015* (AA); Yunnanfu, *O. Schoh 67 = 408* (AA); no precise locality, *Forrest 11256* (AA), *11505* (AA); Yunning, *Forrest 16906* (AA); Tseh Chong, banks of the Mekong, *J. F. Rock 11614* (AA, NY, W); Salween Valley, Peng-ta, *T. T. Yü 23103* (AA); south Chungtien, Chiao-tow on the Yangtze, *K. M. Feng 3089* (AA).

KWEICHOW: Huangtsauba-Taipingai, *Handel-Mazzetti 112 = 10346* (AA); Chengfeng, *Y. Tsiang 4206* (AA, NY, W).

KWANGTUNG: Ying Tak, Chung Tung, Tai Taan, *W. T. Tsang & K. C. Wong 3135 = LU14996* (LU); Lokchong Hsien, way to Tai-lang, near Heo-tse-ling, *Y. Tsiang 1347* (AA).

ADDITIONAL DISTRIBUTION: East Siberia, Korea, and Japan.

This species is very variable in leaf-form; the following two varieties are distinct and well marked.

1a. **Kalopanax pictus** var. **magnificus** (Zabel) Nakai, Fl. Sylvat. Koreana **16:** 36. 1927.

Kalopanax ricinifolius var. *magnificus* Zabel, Gartenwelt **11:** 535. 1907; Koehne, Mitt. Deutsch. Dendr. Ges. **22:** 150. 1913; Harms, op. cit. **27:** 32. *t. 5, f. g–o, t. 86.* 1918; Nakai, Jour. Arn. Arb. **5:** 12. 1924.

Acanthopanax acerifolius Schelle, Mitt. Deutsch. Dendr. Ges. **17:** 212. 1908.

Kalopanax septemlobus var. *magnificus* Hand.-Maz. Symb. Sin. **7:** 699. 1933.

Acanthopanax septemlobus var. *magnificus* Cheng, Contr. Biol. Lab. Sci. Soc. China **9:** 204. 1934.

Branches nearly unarmed or with few prickles. Leaves shallowly lobed and densely pubescent beneath, the lobes ovate.

CHEKIANG: Changhua, *F. N. Meyer 1556* (AA).
HUPEH: Hsin Tien-tsze, *W. Y. Chun 4044* (AA).
ADDITIONAL DISTRIBUTION: Japan.

1b. **Kalopanax pictus** var. **Maximowiczii** (V. Houtte) Hara, Bot. Mag. Tokyo **50:** 565. 1936.

Aralia Maximowiczii V. Houtte, Fl. des Serr. **20:** 39. *t. 2067–2068.* 1874.

Acanthopanax ricinifolius var. *Maximowiczii* Schneider, Ill. Handb. Laubholzk. **2:** 429. *f. 291d.* 1909; Harms, Mitt. Deutsch. Dendr. Ges. **27:** 31. *t. 5–7.* 1918; Lee, For. Bot. China 867. 1935.

Kalopanax ricinifolius var. *Maximowiczii* Nakai, Jour. Arn. Arb. **5:** 13. 1924.

Kalopanax septemlobus var. *Maximowiczii* Hand.-Maz. Symb. Sin. **7:** 699. 1933.

Acanthopanax septemlobus var. *Maximowiczii* Cheng, Contr. Biol. Lab. Sci. Soc. China **9:** 204. 1934.

Leaves deeply 5–7-lobed to beyond the middle, the lobes oblong-lanceolate, densely pubescent beneath.

HONAN: No precise locality, *J. Hers 29* (AA); Teng Feng Hsien, Yu-tai Shan, *J. Hers 2709* (AA).
SHANTUNG: Fei Hsien, Meng Shan, *T. Y. Cheo & L. Yen 322* (AA).
KIANGSU: Shanghai, planted on the ground of St. John's Univ., *L. H. Bailey s. n.* (AA); Haichow, Liu Lin Shan, *J. Hers 658* (AA).
CHEKIANG: Tien Tai, *H. H. Hu 253* (AA).
ADDITIONAL DISTRIBUTION: Japan.

XIV. HETEROPANAX Seemann

Heteropanax Seem. Fl. Vit. 114. 1865, Jour. Bot. **4**: 297. 1866, Revis. Heder. 73. 1868.

Small unarmed trees or shrubs. Leaves pinnately compound or decompound, very large, glabrous or nearly so, the leaflets entire; stipules not prominent. Flowers in umbels, the umbels in large panicles, more or less stellate-pubescent, later glabrescent; bracts small, ovate, obtuse, persistent; pedicels not articulate under the flower. Flowers polygamous, the terminal umbels of each panicle-branch mostly perfect-flowered and usually alone fruiting, the lateral mostly staminate. Calyx-margin nearly entire. Petals 5, valvate. Stamens 5, the anthers round-oval. Ovary 2-celled. Styles 2, distinct from base, spreading. Fruit strongly laterally compressed, almost twice as broad as long, 2-seeded; seeds compressed; endosperm ruminated.

About three species in the western Himalaya region, Burma, southern China and Java.

Type species: *Heteropanax fragrans* (Roxb.) Seem. (*Panax fragrans* Roxb.).

KEY TO SPECIES AND VARIETIES

A. Leaflets large, 8–12 cm. long, 3–6 cm. wide; fruit slightly compressed.
B. Leaflets elliptic, short-acuminate, the base cuneate .....1. *H. fragrans*.
BB. Leaflets ovate, short-acuminate, the base rounded to slightly cordate.
1a. *H. fragrans* var. *subcordatus*.
BBB. Leaflets elliptic, long-acuminate, the base narrowly cuneate.
1b. *H. fragrans* var. *attenuatus*.
AA. Leaflets small, less than 8.5 cm. long and 3.5 cm. wide; fruit greatly compressed.
B. Leaflets 4.5–8.5 cm. long, 2–3.5 cm. wide; pedicels in fruit 4 mm. long.
2. *H. brevipedicellatus*.
BB. Leaflets 2.5–6 cm. long, 0.8–2 cm. wide; pedicels in fruit 1 cm. long.
3. *H. chinensis*.

1. **Heteropanax fragrans** (Roxb.) Seem. Fl. Vit. 114. 1865, Jour. Bot. **4**: 297. 1866, Revis. Heder. 73. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 734. 1879; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 343. 1888; Dunn & Tutch. Kew Bull. Add. Ser. **10**: 120. 1912; Lévl. Cat. Pl. Yun-Nan 11. 1915; Viguier in Lecomte, Fl. Gén. Indo-Chine **2**: 1171. 1923; Chung, Mem. Sci. Soc. China **1**: 186. 1924; Merr. & Chun, Sunyatsenia **2**: 295. 1935.

Panax fragrans Roxb. Hort. Bengal. 21. 1814, *nomen nudum*, Fl. Ind. ed. 2. **2**: 76. 1832; DC. Prodr. **4**: 254. 1830.

Hedera fragrans D. Don, Prodr. Fl. Nepal. 187. 1825.

A tree 8–20 m. high, with pinnately decompound leaves, the leaflets elliptic, short-acuminate, cuneate, and with flowers in umbels, racemosely arranged in a panicle. Leaves large, 0.5–1 m. across, stipulate, petiolate, glabrous or nearly so; stipules small, inconspicuous; petioles 15–30 cm. long; leaflets opposite at nodes of rachis and partial rachises, chartaceous, glabrous on both surfaces, elliptic, about 6–12 cm. long, 3–6 cm. wide, the apex short-acuminate, the base cuneate, the margins entire, the lateral nerves 6–10 on both sides, slightly prominent; petiolules 0–1 cm. long. Inflorescence a panicle, about 30–40 cm. long, ferruginous-stellate-tomentose, the rachis soon glabrous; flowers in racemosely arranged umbels on the branches, the branches 10–20 cm. long, the bracts small,

ovate, obtuse, 2–3 mm. long, persistent, the umbels many-flowered, densely subcapitate, 1.2 cm. in diameter, the peduncles 1–1.5 cm. long, the pedicels 2 mm. long or less in flower, elongating in fruit. Calyx tomentose, 2 mm. long, the margin subentire or very inconspicuously 5-dentate. Petals 5, ovate, 2 mm. long, slightly tomentose outside. Stamens 5, the filaments 3 mm. long. Ovary 2-celled, the styles 2, distinct from base, spreading. Fruit laterally compressed, about 7 mm. across, 3–5 mm. thick, glabrous or glaucous, the pedicels 8 mm. long, the styles 2 mm. long; seeds 2, compressed.

YUNNAN: No precise locality, *Henry s. n.* (NY); Muang Pan, *J. F. Rock 2356* (AA, W); Lung-hok, Jenn-yeh Hsien, *C. W. Wang 80187* (AA).

KWANGTUNG: Hongkong, *C. Ford s. n.* (NY); Hongkong, Botanical Garden, *C. S. Sargent s. n.* (AA); Kochow, *To Kang-peng CCC2739* (NY, W); Canton, Bureau of Forestry Garden, *Y. Tsiang 2056* (AA, NY); Poon Ue District, Honan, *Fung Hom Z22 = LU18627* (NY).

HAINAN: Yaichow, *N. K. Chun & C. L. Tso 44635* (AA, NY, W); Chang-kiang District, Look Mooi Shan & vicinity, *S. K. Lau 1241* (AA, NY); Chang-kiang District, Ka Chik Shan and vicinity, *S. K. Lau 2980* (AA); Kan-en District, Chim Fung Ling, near Sam Mo Watt Village, *S. K. Lau 3419* (AA); no precise locality, *H. Y. Liang 63429* (W), *63650* (AA, NY), *66310* (AA, NY, W), *63839* (AA, NY), *66429* (NY), *C. Wang 36212* (AA, NY).

ADDITIONAL DISTRIBUTION: India, Burma, Java.

This is var. *typica* of C. B. Clarke (Hook. f. Fl. Brit. Ind. **2**: 735. 1879). The other two varieties are also found in China.

1a. **Heteropanax fragrans** var. **subcordatus** C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 735. 1879.

Leaflets ovate, about 10 cm. long and 6 cm. wide, short-acuminate, the base rounded or sometimes slightly cordate.

HAINAN: Kan-en District, Chim Fung Mt. near Shan Mo Kwat Village, *S. K. Lau 4876* (AA).

ADDITIONAL DISTRIBUTION: India.

1b. **Heteropanax fragrans** var. **attenuatus** C. B. Clarke in Hook f. Fl. Brit. Ind. **2**: 735. 1879.

Leaflets elliptic, about 11 cm. long, 4.5 cm. wide, long-acuminate, the base narrowly cuneate.

YUNNAN: Near Keng Hung, *J. F. Rock 2556* (AA).

HAINAN: Ching Mai District, Pak Shek Ling and vicinity, *C. I. Lei 284* (AA, NY, W).

ADDITIONAL DISTRIBUTION: India.

2. **Heteropanax brevipedicellatus** sp. nov.

Frutex erectus 4–7 m. altus. Ramis novellis conferte ferrugineo-tomentosis. Foliis pinnatim decompositis, circa 75 cm. latis, foliolis chartaceis, utrinque glabris, supra haud vel vix nitentibus, ellipticis, circa 4.5–8.4 cm. longis, 2–3.5 cm. latis, apice acuminatis, basi arcte attenuatis, margine integris subrevolutis, nervis lateralibus utrinsecus 6, supra inconspicuis, subtus paulo prominentibus; petiolulis nullis vel 1 cm. longis. Inflorescentiis paniculatis 40 cm. vel ultra longis, conferte ferrugineo-tomentosis, floribus novellis capitatim in umbellis dispositis, umbellis racemose secus paniculae ramulos dispositis, 11 cm. vel ultra longis, bracteis 5 mm. longis. Floribus evolutis ignotis. Fructu luteo lateraliter compresso, 1 cm. longo, 2 mm. crasso, stylis 2 conspicuis patentibus 2–3 mm. longis, pedicellis 4 mm. longis.

KIANGSI: Lungnan District, Oo Chi Shan, near Lam Uk Tung Village, *S. K. Lau 4404* (AA, W).

KWANGTUNG: Wung-yeun District, Tsing Wan Shan, Wong Chuk I and vicinity, *S. K. Lau 2426* (AA); Sin-fung District, Sha Lo Shan, Wa Mei Tong Village, *Y. W. Taam 188* (AA); Sin-fung District, Ngong Tin Lo Shan, Lo Tam Village, *Y. W. Taam 306* (TYPE, AA), Jan. 8–26, 1938.

This species is characterized by its small leaflets and the very short pedicels in the fruits. It is near *Heteropanax chinensis* (Dunn) Li, differing from it, aside from the considerably shorter pedicels in fruits, in the leaflets being larger and generally dull above.

3. **Heteropanax chinensis** (Dunn) comb. nov. (descr. ampl.). Fig. 13.

Heteropanax fragrans var. *chinensis* Dunn, Jour. Linn. Soc. Bot. **38**: 360. 1906.

Frutex 2–3 m. altus. Ramis conferte ferrugineo-tomentosis. Foliis pinnatim decompositis 50–60 cm. latis, stipulis minimis obscuris; petiolis 15–30 cm. longis; foliolis ad nodos rachidum omnium oppositis, chartaceis, glabris, supra nitidis, subtus glaucescentibus, elliptico-lanceolatis, 2.5–5.5 cm. longis, 0.8–1.8

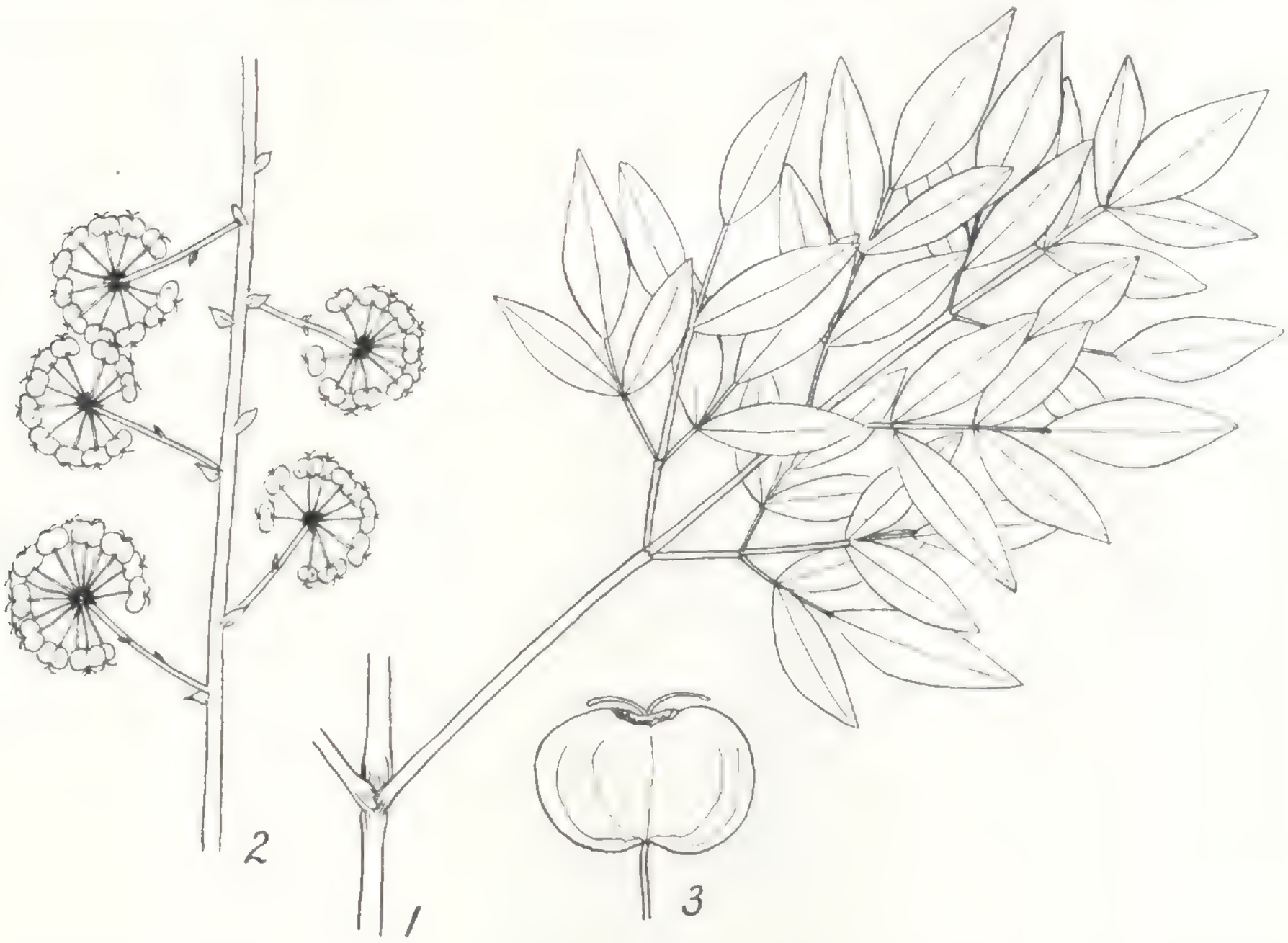


Fig. 13. *Heteropanax chinensis; 1.* portion of leaf, × ½; *2.* portion of infructescence, × ½; *3.* fruit, × 2.

cm. latis, apice longe acuminatis, basi attenuatis, margine integris subrevolutis, nervis lateralibus utrinsecus circa 6, supra inconspicuis, subtus paulo prominentibus; petiolulis nullis vel 1 cm. longis. Inflorescentiis paniculatis ad 30 cm. longis, conferte ferrugineo-tomentosis, floribus luteis fragrantibus (fide collectoris) umbellatis, secus ramulos paniculae racemose dispositis, ramulis 7 cm. longis pauciumbellatis; bracteis ovatis acutis 5 mm. longis; umbellis plurifloris 2 cm. latis; pedunculis 1–1.5 cm. longis, bracteolis 3 mm. longis; pedicellis 4 mm. longis, fructigeris elongatis. Calyce conferte ferrugineo-tomentoso 2 mm. longo, manifeste 5-dentato. Petalis 5 ovatis acutis, 2 mm. longis, extus subtomentosis. Staminibus 5, filamentis 3 mm. longis. Ovario 2-loculari, stylis 2 conspicuis. Fructu rubro-nigrescente (fide collectoris) lateraliter compresso, 8 mm. longo, 2 mm. crasso, stylis 2–3 mm. longis patentibus, pedicellis 1 cm. longis.

YUNNAN: Szemao, *Henry 12865* (isosyntype of *Heteropanax fragrans* var. *chinensis* Dunn, AA, NY, W).

KWANGSI: South of Nanning, Seh-feng-dar-shan, *R. C. Ching 8055* (LU, NY); Shangsze District, Shih Wan Tai Shan, Nam She Village, *W. T. Tsang 24435* (AA, NY), *24584* (AA, NY), *24645* (AA, NY).

A species characterized especially by its small compound leaves, with small, long-acuminate, and attenuate leaflets.

XV. Pentapanax Seemann

Pentapanax Seem. Jour. Bot. **2**: 294. 1864, Revis. Heder. 20. 1868.

Trees or large scandent shrubs. Leaves simply pinnate with 3–9 leaflets, glabrous, the leaflets entire, crenate, or serrate. Flowers perfect or polygamous, racemose or umbellate, when racemose the racemes paniculate, when umbellate the umbels in compound umbels, racemes, or panicles; pedicels articulate under the flower. Calyx 5-dentate. Petals 5 or sometimes 7 or 8, imbricate in bud. Stamens as many as petals, the anthers oblong. Ovary 5- or sometimes 7- or 8-celled. Styles united to summit or free for more than half their length. Fruit globose, 5-celled and angular; seeds laterally compressed; endosperm uniform.

About 10 species, from South America, Australia, and India to Burma and southern China.

Type species: *Pentapanax Leschenaultii* (Wight et Arn.) Seem. (*Hedera Leschenaultii* Wight et Arn.).

Key to Species and Variety

A. Flowers racemosely arranged on ultimate branches of inflorescence. (Section I. *Racemosae* Harms.)
  B. Inflorescence glabrous, the pedicels 1.5 mm. long; styles united nearly to their tips. 1. *P. subcordatus.*
  BB. Inflorescence more or less hirsute, the pedicels 0–1 mm. long; styles in perfect flowers free to half or more their length, recurved ..... 2. *P. racemosus.*
AA. Flowers umbellately arranged on ultimate branches of inflorescence. (Section II. *Umbellatae* Harms.)
  B. Inflorescence paniculate, large, about 30 cm. long, the branches simple or compound, the umbels racemosely arranged ..... 3. *P. Henryi.*
  BB. Inflorescence corymbose, 8–15 cm. long, often with 4 umbels verticillately arranged near middle of branches.
    C. Leaflets mostly 5, chartaceous to subcoriaceous, the margins serrate. 4. *P. Leschenaultii.*
    CC. Leaflets mostly 3, membranaceous to chartaceous, the margins entire. 4a. *P. Leschenaultii* var. *Forrestii.*
  BBB. Inflorescence racemose (i.e. the umbels in simple racemes), small, 10–20 cm. or less long.
    C. Racemes with umbels all pedunculate.
      D. Leaflets ovate-lanceolate; raceme 10 cm. or less long, with 2–8 umbels. 5. *P. parasiticus.*
      DD. Leaflets broadly ovate; raceme 15–20 cm. long, with about 10 umbels. 6. *P. yunnanensis.*
    CC. Racemes with the lower umbels pedunculate, the upper ones sessile, verticillately arranged on axis ..... 7. *P. verticillatus.*

1. **Pentapanax subcordatus** (Wall.) Seem. Jour. Bot. **2**: 295. 1864, Revis. Heder. 22. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 724. 1879; W. W. Smith, Notes Bot. Gard. Edinb. **17**: 299, 311. 1930.

   Hedera subcordata Wall. List no. 4917. 1832, *nomen nudum;* G. Don, Gen. Syst. **3**: 394. 1834.

A small tree with 5-foliolate pinnately compound leaves and 3–8 panicles clustered at ends of branches, the flowers racemosely arranged on the panicle-branches. Leaves long-petiolate; petioles glabrous, about 25 cm. long; leaflets chartaceous, glabrous, petiolulate, ovate-oblong, 10–14 cm. long, 7–10 cm. wide, the apex acuminate, the base rounded to subcordate, the margins subentire to obscurely serrulate, the lateral nerves about 8 on each side, prominent on both surfaces, the tertiary nerves conspicuous on both surfaces; petiolules 0.5–1 cm.

long. Panicles glabrous, to 50 cm. long, the lateral branches about 10 cm. long; flowers racemosely arranged on branches, the pedicels about 1.5 cm. long, glabrous, with a minute linear bracteole at base. Calyx glabrous, the margin 5-dentate. Petals 5, triangular-ovate, 1.5 mm. long, glabrous, reflexed. Stamens 5, the filaments 1.75 mm. long. Ovary 5-celled, the styles united into a column to their tips. Fruit subglobose, obscurely 5-angular.

YUNNAN: Northwest of Tengyueh, *Forrest 26718* (AA, W).

ADDITIONAL DISTRIBUTION: Himalayan region.

This species, together with *Pentapanax racemosus* Seem., differs from other species of the genus in the flowers being racemosely arranged.

2. **Pentapanax racemosus** Seem. Jour. Bot. **2**: 295. 1864, Revis. Heder. 21. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 724. 1879.

A tree 7–20 m. in height, with 5-foliolate pinnately compound leaves and 3–9 panicles clustered at ends of branches, the flowers racemosely arranged on the panicle-branches. Leaves petiolate; petioles about 10 cm. long; leaflets submembranaceous, glabrous, petiolulate, ovate-oblong, 7–13 cm. long, 4.5–8 cm. wide, the apex acuminate, the base obtuse to subcordate, the margins subentire, the lateral nerves about 8 on each side, prominent on both surfaces, the tertiary veins subconspicuous. Inflorescence unisexual, the panicles more or less hirsute, to 50 cm. long, the lateral branches about 6–7 cm. long, sometimes compound; flowers racemosely arranged on the branches, the pedicels 0–1 mm. long, slightly hirsute, with a minute linear bracteole at base. Calyx glabrous, the margin minutely 5-dentate, fimbriate. Petals 5, triangular-ovate, 1 mm. long, glabrous, reflexed. Stamens 5, the filaments 1 mm. long. Ovary 5-celled, the styles in male flowers united nearly to their tips, in imperfect flowers 3–5, recurved and free sometimes nearly to base. Fruit subglobose, very slightly angular, the style-column persistent, the tips distinct and reflexed at about the middle.

YUNNAN: Shunning, Huaiyangpu, *T. T. Yü 16375* (AA); Chenkang, Snow Range, *T. T. Yü 16894* (AA).

ADDITIONAL DISTRIBUTION: Himalayan region.

This species is closely related to *Pentapanax subcordatus* (Wall.) Seem. in that the flowers in both are racemosely arranged on the inflorescence branches, not in umbels. It can be distinguished from the latter by its longer petiolules, more or less hirsute inflorescences, shorter pedicels, fimbriate calyx-margins, and its divergent styles.

3. **Pentapanax Henryi** Harms, Bot. Jahrb. **23**: 21. 1896; Harms ex Diels, Bot. Jahrb. **29**: 489. 1900; Diels, Notes Bot. Gard. Edinb. **7**: 191. 1912; Lévl. Cat. Pl. Yun-Nan 11. 1915; Harms & Rehder in Sargent, Pl. Wils. **2**: 565. 1916; Chung, Mem. Sci. Soc. China **1**: 189. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **14**: 371. 1924, **17**: 236, 262. 1929–30.

Aralia tomentella Franch. Jour. de Bot. **10**: 304. 1896, Pl. Sin. Ecl. Prim. 24. 1897; Lévl. Cat. Pl. Yun-Nan 11. 1915; Chung, Mem. Sci. Soc. China **1**: 189. 1924; syn. nov.

Pentapanax Larium Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **61**: 121. 1924; syn. nov.

Pentapanax Henryi Harms var. *Larium* Hand.-Maz. Symb. Sin. **7**: 699. 1933; syn. nov.

A shrub 2–5 m. tall, with 3- or 5-foliolate pinnately compound leaves and terminal long panicles formed by numerous umbels. Leaves long-petiolate; petioles 4–11 cm. long; leaflets membranaceous to chartaceous, glabrous above, with very small tufts of pubescence in axils of nerves beneath, short-petiolulate, ovate to ovate-oblong, 5–12 cm. long, 3–7 cm. wide, the apex acute to short-acuminate, the base rounded to obtuse or attenuate, the margins serrate, the lateral nerves about 6–8 on each side, subconspicuous above, distinct and elevated beneath, the tertiary veins obscure above, subconspicuous beneath; petiolules of lateral leaflets

0.5 cm. long, those of median leaflets 1.5–3 cm. long. Inflorescence a long terminal conical panicle formed by numerous umbels, the main axis densely ferruginous-villose, about 30 cm. long, the lateral branches simple or compound, the umbels many-flowered, these racemosely arranged on the branches, the peduncles densely ferruginous-villose, 2–5 cm. long, the bracts ovate, about 5 mm. or more long, the pedicels slender, ferruginous-villose, about 1 cm. long. Calyx glabrous, the margin 5-dentate, the lobes ovate. Petals 5, glabrous, triangular-oblong, 1.5 mm. long, reflexed. Stamens 5, the filaments 2 mm. long. Ovary 5-celled, the styles connate. Fruit ovoid, black, about 6–7 mm. across, the style-column about 2 mm. long, sometimes separate and divergent at tip.

SZECHUAN and SIKANG: No precise locality, *Henry 7035* (G, W); western Szechuan, *Wilson 1311* in part (NY, W); near Tachienlu, *Wilson 1311* in part (AA); near Mupin and Fulin, *Wilson 1311* in part (AA, G); west of Kuan Hsien, Pan-lan-shan, *Wilson 4284* (AA).

YUNNAN: San-tschan-kiou, *Delavay 3896* (holotype of *Aralia tomentella* Franch., photo. and merotype in AA); Mengtze, *Henry 11278* (AA, NY, W), *11278A* (AA, NY, W); no precise locality, *F. Ducloux 125* (NY); Lichiang, *C. Schneider 2075* (AA); inter fl. Yangtze und Mekong, Djitsung-Kakatang, *Handel-Mazzetti 7875* (isotype of *Pentapanax Larium* Hand.-Maz., AA); no precise locality, *Forrest 11109* (AA), *11120* (AA), *11128* (AA); western flank of Lichiang range, *Forrest 16935* (AA); Sungkwei Range, *Forrest 23032* (AA); between Likiang and Talifu, *J. F. Rock 6564* (AA); no data, *T. T. Yü 10434* (AA); western Likiang, Tamichung, *R. C. Ching 21574* (AA); eastern Likiang, Tai-ngo-koo, *R. C. Ching 21648* (AA); Likiang City, *R. C. Ching 22204* (AA); between Ngerya and Zukou, on the border of Chungtien, *K. M. Feng 2919* (AA); southern Chungtien, Tali on the banks of the Yangtze, *K. M. Feng 2315* (AA); southern Chungtien, Wo-tso on the banks of the Yangtze, *K. M. Feng 3342* (AA).

This species is characterized by the elongated paniculate inflorescence with branches either simple or compound. *Aralia tomentella* Franch. is reduced to synonymy on the basis of a photograph and fragments of the type (in AA). The character used by Handel-Mazzetti to separate the var. *Larium* from the type is trivial and not constant; hence the name is here treated as a synonym. Cheng describes var. *wangshanensis* (Contr. Biol. Lab. Sci. Soc. China **9**: 205. 1934) from Anhwei, but I have seen no specimen. His description is as follows:

"A typo recedit inflorescentia minus tomentosa, squamis umbellarum parvis, lanceolatis, 5–10 mm. longis, stylis omnino cohaerentibus.

"Anhwei: Wangshan, among rocks, alt. 1300 m., W. C. Cheng 4108, bush 2–2.5 m. tall, fruits black, Oct. 18, 1933; same locality, M. Chen no. 1215 (type), Oct. 3, 1933.

"This new variety differs from the type by its less tomentose inflorescence with smaller bracts of the umbels, and by its entirely connate styles. It differs from *P. Henryi* var. *larium* Hand.-Mzt. by its more flowered (25–50) umbels, and by its usually acute calyx lobes and entirely connate styles."

4. **Pentapanax Leschenaultii** (Wight et Arn.) Seem. Jour. Bot. **2**: 296. 1864, Revis. Heder. 22. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 724. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 474. 1911; Diels, Notes Bot. Gard. Edinb. **7**: 116, 117. 1912; Lévl. Cat. Pl. Yun-Nan 11. 1915; Chung, Mem. Sci. Soc. China **1**: 189. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **14**: 270, 309, 352. 1924, **17**: 101, 125, 165, 280, 340. 1929–30; Hand.-Maz. Symb. Sin. **7**: 700. 1933.

Hedera Leschenaultii Wight et Arn. Prodr. **1**: 377. 1834.

Hedera trifoliata Wight et Arn. Prodr. **1**: 377. 1834; Wight, Icon. Plant. Ind. Orien. **1**: 16. *t. 307*. 1840.

A tree of about 10–15 m. tall or a scandent shrub, with 3–5-pinnately compound leaves and terminal corymbose inflorescences composed of 5–10 branches, each branch bearing a terminal umbel and commonly with 4 more umbels verticillately arranged near middle. Leaves petiolate; petioles 10–15 cm. long; leaflets chartaceous to subcoriaceous, glabrous above, pubescent along the nerves or glabrous beneath, short-petiolulate, elliptic-ovate, 6–12 cm. long, 2.5–6 cm. wide, the apex

acuminate, the base rounded, the margins bristly serrate, the lateral nerves 6–10 on each side, subconspicuous above, distinct and elevated beneath, the tertiary veins subconspicuous above, distinct beneath; petiolules 0.3–1 cm. long. Inflorescence terminal, corymbose, about 8–15 cm. long, with 5–10 branches arranged on a short axis 1–2 cm. in length, each branch bearing a terminal umbel and with 0–4 (commonly 4) umbels verticillately arranged near middle, puberulo-pubescent, the umbels many-flowered, 2–2.5 cm. across, the peduncles 1.5–3 cm. long, the pedicels 0.5–1 cm. long, glabrous or puberulo-pubescent. Calyx glabrous, 2 mm. long, 5-dentate. Petals 5, glabrous, 2 mm. long, cohering into an early deciduous calyptra. Ovary 5-celled, the styles connate to nearly their tips. Fruit ovoid, 3–4 mm. long, slightly 5-angular, the style-column 1.5 mm. long.

SZECHUAN: Southeast of Muli, *Forrest 22163* (AA).

YUNNAN: Mengtze, *Henry 9806* (NY); Feng Chen Lin, *Henry 13646* (AA, W); Lidjiang, Yuling-schan, *Handel-Mazzetti 3735* (AA); Likiang, *C. Schneider 2441* (AA, G); inter fl. Salween et Tengyueh, *C. Schneider 3166* (AA); no precise locality, *Forrest 10765* (AA); Sung-kwei Range, *Forrest 21574* (AA, W); Yangtze watershed, District of Likiang, eastern slopes of the Likiang Snow Range, *J. F. Rock 3730* (W), *4482* (AA, W); mountains south of Likiang, Sungkwei Hochin Range, *J. F. Rock 8302* (AA, W); Pin-chuan Hsien, *H. T. Tsai 52982* (AA); Che-tse-lo, *H. T. Tsai 59338* (AA); Likiang Hsien, *C. W. Wang 70979* (AA); Likiang Snow Range, *T. T. Yü 15237;* Upper Kiukiang Valley, Bahlaka, *T. T. Yü 19578* (AA), *19584* (AA); Taron-Taru Divide, Ahtehmai, *T. T. Yü 20050* (AA); Likiang Snow Range, *R. C. Ching 30376* (AA); eastern flank of Likiang Snow Range, *R. C. Ching 30648* (AA).

ADDITIONAL DISTRIBUTION: India to Burma.

In this species, specimens with both 3- and 5-foliolate leaves are included. Most of the specimens studied are with 5-foliolate leaves only. *Tsai 59338* and *Yü 19584* and *20050* bear only 3-foliolate leaves, while *Yü 19578* and *Ching 30648* bear both 3- and 5-foliolate leaves on the same plant. This species is characterized by the corymbose inflorescence with commonly four umbels verticillately arranged near the middle of the branches.

4a. **Pentapanax Leschenaultii** var. **Forrestii** (W. W. Smith) comb. nov.

Pentapanax Forrestii W. W. Smith, Notes Bot. Gard. Edinb. **10:** 58. 1917.

Pentapanax truncicolus Hand.-Maz. Anz. Akad. Wiss. Wien Math.-Nat. Kl. **61:** 200. 1924, Symb. Sin. **7:** 700. 1933; syn. nov.

Leaflets mostly 3, membranaceous to chartaceous, the margins entire.

YUNNAN: Doyonlumba, ad fl. Lidjiang, *Handel-Mazzetti 8321* (isotype of *Pentapanax truncicolus* Hand.-Maz., AA); Wei-si Hsien, Yeh-chih, *C. W. Wang 68287* (AA), *68708* (AA).

Forrest's material, on which Smith's species was based, and Wang's specimens cited above have 3-foliolate leaves only. Handel-Mazzetti's specimen is rather fragmentary. It is an epiphytic form with both 3- and 5-foliolate leaves. Otherwise it agrees with Smith's description and is probably best placed here.

5. **Pentapanax parasiticus** (D. Don) Seem. Jour. Bot. **2:** 296. 1864, Revis. Heder. 22. 1868; Dunn, Jour. Linn. Soc. Bot. **39:** 424. 1911; Chung, Mem. Sci. Soc. China **1:** 189. 1924.

Hedera parasitica D. Don, Prodr. Fl. Nepal. 188. 1825; DC. Prodr. **4:** 265. 1830.

A low scandent shrub with 3–5-foliolate pinnately compound leaves and terminal simple racemes formed by 2–8 umbels. Leaves petiolate; petioles slender, glabrous, 3–6 cm. long; leaflets membranaceous, glabrous, short-petiolulate, ovate-lanceolate, 4–7 cm. long, 2–2.5 cm. wide, the apex acute to acuminate, the base rounded to subacute, the margins entire, the lateral nerves about 6–8 on each side, conspicuous on both surfaces, the tertiary veins manifest on both surfaces; petiolules 3–5 mm. long. Inflorescence of terminal simple racemes of 2–8 umbels, 10 cm. or less long, glabrous, the umbels many-flowered, 2.5–3.5 cm. in

diameter, the peduncles slender, 2–4 cm. long, the bracts ovate, membranaceous, 3–5 mm. long, the pedicels slender, 0.8–1.5 cm. long, glabrous. Calyx glabrous, 5-dentate. Petals 5, triangular-ovate, 2 mm. long, glabrous. Stamens 5, the filaments 2.5 mm. long. Ovary 5-celled, the styles long, united into a column about 1.2 mm. long.

YUNNAN: Chi-na-tung, Champutung, *C. W. Wang 66605* (AA).
ADDITIONAL DISTRIBUTION: India.

This differs from other species of the genus in its simple racemose inflorescences consisting of few umbels, its small leaves, and its rather long style-column. The only specimen cited above has 3-foliolate leaves. Although in the original description 5-foliolate leaves are indicated, Indian specimens available for comparison have both 3- and 5-foliolate leaves. The 3-foliolate leaves may be interpreted as representing intra-specific variation, as is found in various other species of the genus.

6. **Pentapanax yunnanensis** Franch. Jour. de Bot. **10**: 305. 1896, Pl. Sin. Ecl. Prim. 25. 1897; Lévl. Cat. Pl. Yun-Nan 11. 1915; Chung, Mem. Sci. Soc. China **1**: 189. 1924; Hand.-Maz. Symb. Sin. **7**: 700. 1933.

A glabrous shrub, with 5-foliolate pinnately compound leaves and terminal racemes formed by few umbels. Leaves long-petiolate; petioles 4–12 cm. long; leaflets chartaceous, glabrous on both surfaces, subsessile to short-petiolulate, broadly ovate, 5–7.5 cm. long, 3.5–5.5 cm. wide, the apex obtuse to acute, the base rounded, the margins serrate, the lateral nerves about 6 on each side, conspicuous on both surfaces, the tertiary veins prominent on both surfaces; petiolules 0–0.5 cm. long, the terminal to 4 cm. long. Inflorescence a terminal raceme formed by about 10 umbels, about 15–20 cm. long, glabrous, the umbels many-flowered, racemosely arranged on the main axis, the peduncles about 2 cm. long, the pedicels 0.8–1 cm. long, glabrous. Calyx glabrous, the margin 5-dentate, the lobes rounded. Petals 5, glabrous. Stamens 5. Ovary 5-celled, the styles connate into a column. Fruits depressed-globose, 4 mm. across, 5-angular.

YUNNAN: In monte Ma-eul-shan, *Delavay s. n.* (HOLOTYPE, merotype in AA); Pelong-tsin, *Maire 6300* (W); Dali, Yidjiatscheang, *Handel-Mazzetti 6424* (AA) (juvenile).

A species characterized by its broadly ovate leaflets and solitary terminal inflorescences, the latter formed by racemosely arranged umbels. This *Pentapanax* resembles certain species of *Aralia,* particularly *A. caesia* Hand.-Maz. and its allies.

7. **Pentapanax verticillatus** Dunn, Jour. Linn. Soc. Bot. **35**: 498. 1903; Chung, Mem. Sci. Soc. China **1**: 189. 1924.

A shrub about 1 m. tall, with 3-foliolate pinnately compound leaves and terminal inflorescences, the flowers in umbels, terminating the main axis and basal branches and also arranged verticillately along the axis, these lateral umbels sessile. Leaves petiolate; petioles 3–5 cm. long, glabrous; leaflets subcoriaceous, glabrous above, glaucous beneath, short-petiolulate, ovate, 5–8 cm. long, 2–3 cm. wide, the apex acute, the base acute to slightly rounded, the margins entire, revolute, the lateral nerves 6–8 on each side, conspicuous on both surfaces, the tertiary veins subconspicuous. Inflorescence terminal, 6–10 cm. long, red-ferruginous-tomentose, branching near base only, the branches about 1.5 cm. long, with large membranaceous bracts at base of inflorescence and of branches, the umbels many-flowered, 1.5–2 cm. across; pedicels slender, about 6–8 mm. long. Calyx glabrous, 5-dentate. Petals 5, triangular-ovate, 1.5 mm. long, glabrous. Stamens 5, the filaments 1.5 mm. long. Ovary 5-celled, the styles united into a single column.

YUNNAN: Mengtze, *Henry 9284* (ISOTYPE, AA, NY, W).

A species, known from the original collection only, characterized by the small inflorescences which are red-ferruginous-tomentose, few-branched at the base only, and with sessile umbels verticillately arranged on the main axis.

XVI. Aralia Linnaeus

Aralia Linn. Syst. ed. 1. 1735; Gen. Pl. ed. 1. 88. 1737, ed. 5. 134. 1754.

Dimorphanthus Miq. Comm. Phytogr. 95. *t. 12.* 1840.

Herbs, shrubs, or small trees, glabrous or hairy, often prickly. Leaves pinnate to tripinnate, with serrate or nearly entire leaflets, exstipulate. Flowers polygamo-monoecious, in umbels, the umbels solitary or several together, usually arranged in racemes or panicles, rarely in compound umbels, the pedicels mostly distinctly articulate under the flower. Calyx-margin minutely 5-dentate. Petals 5, imbricate. Ovary 2–5-celled. Styles 2–5, free or shortly connate at base, the disk fleshy, small, slightly raised at the margin. Fruit 2–5-celled, subglobose, 3–5-angular; seeds compressed; endosperm uniform.

Over thirty species in North America, Asia and Malaya.

Type species: *Aralia spinosa* Linn.

Key to Species and Varieties

A. Herbs.
- *B.* Inflorescence corymbose, the main axis 5 cm. or less long. (Section I. *Anomalae* Harms).
  - *C.* Petiolules of lateral leaflets none or short, 0–1 cm. long.
    - *D.* Leaflets small, 1–3.5 × 1–2 cm., deeply and densely double-serrate...1. *A. apioides.*
    - *DD.* Leaflets large, 3–12 × 1.5–7 cm., serrate or crenate-serrate.
      - *E.* Leaflets ovate or elliptic, sparsely pilose along the veins on both surfaces, the base obtuse to slightly rounded, the margins crenate-serrate .....2. *A. Henryi.*
      - *EE.* Leaflets ovate to oblong-ovate, scabrid on both surfaces, pubescent along the veins beneath, the base cordate, the margins serrate.
        - *F.* Leaflets large, 3–12 × 1.5–7 cm. .....3. *A. Fargesii.*
        - *FF.* Leaflets small, 4.5 × 2 cm. or less .....3a. *A. Fargesii* var. *yunnanensis.*
  - *CC.* Petiolules of lateral leaflets 0.5–2 cm. long .....4. *A. atropurpurea.*
- *BB.* Inflorescence paniculate, the main axis 10 cm. or more long. (Section II. *Genuinae* Harms).
  - *C.* Leaflets large, 4–15 cm. long .....5. *A. cordata.*
  - *CC.* Leaflets small, 2–4.5 cm. long .....6. *A. dumetorum.*

AA. Shrubs or trees.
- *B.* Flowers distinctly pedicellate, umbellate. (Section III. *Arborescentes* Harms).
  - *C.* Plants always more or less armed with prickles or spines.
    - *D.* Stems and branches densely prickly; petiole, rachis, and partial rachises of leaves as well as inflorescences more or less prickly.
      - *E.* Leaves and inflorescences with long prickles and dense, long setose hairs, the prickles 3–10 mm. long .....7. *A. spinifolia.*
      - *EE.* Leaves and inflorescences with short prickles, glabrous or pilose, the prickles less than 4 mm. long.
        - *F.* Pedicels short, 1.5 cm. long, pubescent .....8. *A. armata.*
        - *FF.* Pedicels long, 2–5 cm. long, glabrous or nearly so .....9. *A. foliolosa.*
    - *DD.* Stems and branches densely or sparingly prickly; petiole, rachis and partial rachises of leaves and inflorescences unarmed or occasionally with very few widely scattered prickles.
      - *E.* Inflorescence corymbose-paniculate, the axis short, the branches subumbellately arranged.
        - *F.* Leaflets undulate-mucronate .....10. *A. undulata.*
        - *FF.* Leaflets serrate, not undulate.
          - *G.* Leaflets subchartaceous, glabrous to slightly pubescent along the veins; inflorescence pubescent .....11. *A. elata.*
          - *GG.* Leaflets coriaceous, fulvous-strigose-tomentose; inflorescence densely fulvous-strigose .....12. *A. Searelliana.*

EE. Inflorescence paniculate, the axis long, the branches racemosely arranged.
F. Pedicels short, 4–6 mm. long.
G. Leaflets glabrous to slightly scabrid above, pubescent especially along the veins beneath .....13. *A. chinensis.*
GG. Leaflets glabrous above, glaucescent and glabrous beneath except the sparingly pubescent midrib .....13a. *A. chinensis* var. *nuda.*
GGG. Leaflets densely yellow-strigose above, densely yellow-strigose-tomentose especially along the veins beneath ....13b. *A. chinensis* var. *dasyphylloides.*
FF. Pedicels long, 0.8–3 cm. long.
G. Leaflets membranaceous to subchartaceous, glabrous. ...14. *A. echinocaulis.*
GG. Leaflets chartaceous to coriaceous, fulvous-tomentose.
H. Umbels many(30–50)-flowered .....15. *A. Decaisneana.*
HH. Umbels fewer(15–20)-flowered .....16. *A. Thomsonii.*
CC. Plants completely unarmed.
D. Leaves once or twice pinnate.
E. Leaves usually once pinnate, 10–16 cm. long, the leaflets ovate to orbicular. 17. *A. caesia.*
EE. Leaves bipinnate, 30–40 cm. long, the leaflets oblong-ovate to ovate-lanceolate. 18. *A. Wilsonii.*
DD. Leaves tripinnate .....19. *A. plumosa.*
BB. Flowers sessile, capitate. (Section IV. *Capituligerae* Harms) ...20. *A. dasyphylla.*

1. **Aralia apioides** Hand.-Maz. Symb. Sin. **7:** 701. *t. 11, f. 7.* 1933.

An herb about 1 m. tall, with thick horizontal rhizomes, 1–3-pinnate leaves, and terminal or axillary corymbose-paniculate inflorescences. Upper leaves often simple- or 2-pinnate, 3–9-foliolate, short-petiolate, the lower leaves 2- or 3-pinnate, to 60 cm. long including the petiole, long-petiolate, the pinnae 2-pinnate, the ultimate pinnules 5–9-foliolate; petioles slender, 2–15 cm. long; leaflets membranaceous, glabrous to slightly pilose-scabrid above, slightly pilose to glabrescent along the veins beneath, short-petiolulate, broadly ovate, 1–3.5 cm. long, 1–2 cm. wide, the apices of terminal leaflets long-acuminate, of lateral ones often obtuse, the base cordate to obtuse, the lateral ones usually slightly oblique, the margins deeply and densely double-serrate (teeth setose-acuminate), the lateral nerves about 4 or 5 on each side, subconspicuous, the tertiary veins inconspicuous above, subconspicuous beneath; petiolules 1–5 mm. long. Inflorescence terminal or axillary, corymbose-paniculate, slightly pilose to glabrescent, to 30 cm. long; flowers in umbels, these racemosely arranged on the branches, 7–10-flowered, the peduncles 1.5–3 cm. long, the pedicels 1–4 mm. long. Calyx glabrous, about 1.5 mm. long, 5-dentate, the lobes triangular-ovate, obtuse. Petals 5, triangular-ovate, about 1 mm. long. Stamens 5. Ovary 3–5-celled, the styles 3–5, distinct. Fruit subglobose, about 4 mm. long, 5-angular.

YUNNAN: Northern flank of Haba Snow Range, *K. M. Feng 1351* (AA).

This species is near to *Aralia Fargesii* Franch. and *A. Henryi* Harms, differing from both in its much smaller leaflets, which are deeply and densely double-serrate.

2. **Aralia Henryi** Harms, Bot. Jahrb. **23:** 12. 1896; Harms ex Diels, Bot. Jahrb. **29:** 490. 1900.

Aralia pilosa Franch. Jour. de Bot. **10:** 302. 1896, Pl. Sin. Ecl. Prim. 21. 1897.

A slender herb, with short rhizome, 3-pinnate leaves, and terminal corymbose-paniculate inflorescences. Leaves about 16–20 cm. long including the petioles, the ultimate pinnules 3-foliolate; petioles 5–8 cm. long, puberulous to glabrous; leaflets membranaceous, sparsely pilose along the veins on both surfaces, the lateral leaflets sessile to subsessile, the terminal petiolulate, ovate or elliptic, 3.5–7.5 cm. long, 2–5 cm. wide, the lateral ones smaller and oblique, the apex acuminate, the base obtuse to slightly rounded, the margins crenate-serrate, the lateral nerves about 6–8 on each side, subconspicuous, the tertiary veins inconspicuous above, subconspicuous beneath; petiolules of terminal leaflets 0.4–2 cm. long.

Inflorescence a terminal corymbose-panicle, the flowers in umbels, these few-flowered, the peduncles 0.5–1 cm. long, the pedicels short, about 2–3 mm. long. Calyx 5-dentate, the lobes obtuse. Petals 5, membranaceous, broadly triangular-ovate, the apex acute to subobtuse. Stamens 5. Ovary 3–5-celled, the styles 3–5, filiform, distinct. Fruit subglobose, about 3 mm. across, 5-angular.

HUPEH: No precise locality, *Henry 6655* (ISOTYPE, G, NY).

3. **Aralia Fargesii** Franch. Jour. de Bot. **10**: 302. 1896, Pl. Sin. Ecl. Prim. 22. 1897; Harms ex Diels, Bot. Jahrb. **29**: 490. 1900; Chung, Mem. Sci. Soc. China **1**: 189. 1924.

An herb about 1 m. tall, with thick elongate rhizome, 1–3-pinnate leaves, and terminal or axillary, subumbellate or corymbose, few-branched inflorescences. Leaves 1–3-pinnate, the upper leaves often simple-pinnate, 3–5-foliolate, the lower 2- or 3-pinnate, 20–45 cm. long including the petioles, the pinnae 1–2-pinnate, the ultimate pinnules 3–5-foliolate; petioles slender, 4–16 cm. long; leaflets membranaceous, scabrid on both surfaces, pubescent along the veins beneath, petiolulate, ovate to oblong-ovate, 3–12 cm. long, 1.5–7 cm. wide, the apex long-acuminate, the base cordate, the lateral ones slightly oblique, the margins serrate, the lateral nerves about 5 or 6 on each side, subconspicuous, the tertiary veins inconspicuous above, subconspicuous beneath; petiolules glabrous to slightly pilose, the lateral ones 0.2–1 cm. long, the terminal 1–2.5 cm. long. Inflorescence terminal or axillary, subumbellate or corymbose, few-branched, the branches 7–22 cm. long, simple or compound, the flowers in umbels, these racemosely arranged on the branches, about 10–20-flowered, 1.4 cm. across, the peduncles 1.5–7 cm. long, glabrous or slightly scabrid, the pedicels 2–4 mm. long, glabrous or slightly scabrid. Calyx slightly scabrid outside, 5-dentate, the lobes broad-triangular. Petals 5, glabrous. Stamens 5. Ovary 5-celled, the styles distinct. Fruit subglobose, whitish, about 5 mm. long, strongly 5-angular.

HUPEH: No precise locality, *Henry 6785* (G, NY, W).
SZECHUAN: Tschen-keou-tin, *Farges s. n.* (HOLOTYPE, photo. in AA).
YUNNAN: No data, *F. Ducloux 169* (NY), *T. T. Yü 14050* (AA); Muli, Consinliang near Ngerya, on the border of Chungtien, *K. M. Feng 2791* (AA).

This species is near *Aralia Henryi* Harms, differing in the shape, indumentum, and serration of the leaflets as indicated in the descriptions. It is also related to *A. cordata* Thunb. but can be distinguished from the latter by its usually smaller leaflets, with more rounded bases, its corymbose inflorescence, and its shorter pedicels.

3a. **Aralia Fargesii** var. **yunnanensis** (Franch.) comb. nov.

Aralia yunnanensis Franch. Jour. de Bot. **10**: 303. 1896, Pl. Sin. Ecl. Prim. 23. 1897; Lévl. Cat. Pl. Yun-Nan 11. 1915; Chung, Mem. Sci. Soc. China **1**: 189. 1924.

Differs from the species in the smaller leaflets, these ovate-oblong, 4.5 cm. long, 2 cm. wide, the apex acuminate, the base cordate to subcordate, the margins serrate.

YUNNAN: Kichan, Tapintze, *Delavay 4027* (HOLOTYPE of *Aralia yunnanensis* Franch., photo. and merotype in AA).

Two specimens are cited in the original description of *Aralia yunnanensis* Franch. Fragments and photographs of both in the herbarium of the Paris Museum are in the herbarium of the Arnold Arboretum. The two numbers apparently represent two entirely different species; the first, *Delavay 4027,* is an herbaceous plant, and the second, *Delavay 4581,* is a woody plant. The first one is here treated as the type of his species. It is very similar to *Aralia Fargesii* Franch., the leaves with the same setose surfaces and serrate margins, and the fruits of both are whitish, globose, and strongly 5-angular. It differs from

Aralia Fargesii Franch. in the smaller and narrower leaflets and is here treated as a variety of the latter. See also notes under *A. Wilsonii* Harms.

4. **Aralia atropurpurea** Franch. Jour. de Bot. **10:** 301. 1896, Pl. Sin. Ecl. Prim. 21. 1897; Lévl. Cat. Pl. Yun-Nan 11. 1915; Hand.-Maz. Symb. Sin. **7:** 701. 1933.

· An herb about 1–1.5 m. tall, with elongated rhizome, 1- or 2-pinnate leaves, and terminal corymbose inflorescence. Upper leaves simple-pinnate, 3–7-foliolate, the lower leaves 1- or 2-pinnate, 20–30 cm. long including the petiole, the pinnae 3-foliolate; petioles 1.5–4 cm. long; leaflets membranaceous, sparsely setose-scabrid on both sides, long-petiolulate, ovate, 3–8 cm. long, 2–3 cm. wide, the apex long-acuminate, the base broad-cuneate, the margins double-serrate, the lateral nerves about 5–7 on each side, subconspicuous, the tertiary veins inconspicuous; petiolules 0.5–2.5 cm. long, the terminal one to 4 cm. long. Inflorescence terminal, corymbose, glabrous to slightly scabrid, the branches to 18 cm. long, usually again umbellately branched at tip, the umbels few-flowered, the peduncles slender, 3–7 cm. long, the pedicels about 1 cm. long. Calyx 1.5 cm. long, the margin 5-dentate, the lobes deltoid, acute. Petals 5, purplish, glabrous, triangular. Stamens 5. Ovary 5-celled, the styles 5, distinct. Fruit globose, about 3.5 cm. across, 5-angled.

YUNNAN: Wei-si Hsien, *C. W. Wang 63870* (AA); Mekong-Salwin divide, Sewalongba, *T. T. Yü 22458* (AA).

This species is near *Aralia Henryi* Harms, *A. Fargesii* Franch., and *A. apioides* Hand.-Maz., but can be distinguished from them by its long petiolules and its slender and long peduncles.

5. **Aralia cordata** Thunb. Fl. Jap. 127. 1784; Harms, Bot. Jahrb. **23:** 15. 1896; Dunn, Jour. Linn. Soc. Bot. **39:** 419. 1911; Yabe, Enum. Pl. Manch. 98. 1912; Chung, Mem. Sci. Soc. China **1:** 189. 1924; Nakai, Jour. Arn. Arb. **5:** 28. 1924; Chien, Contr. Biol. Lab. Sci. Soc. China **3:** 68. 1927; Tang, Bull. Fan Mem. Inst. Biol. **2:** 101. 1931.

Aralia edulis Sieb. & Zucc. Fl. Jap. **1:** 57. *t. 25.* 1837; Seem. Jour. Bot. **6:** 134. 1868, Revis. Heder. 91. 1868.

Aralia nutans Franch. & Sav. Enum. Pl. Jap. **2:** 376. 1879.

Dimorphanthus edulis Miq. Comm. Phytogr. 96. 1837; Walp. Rep. **2:** 431. 1843.

An herb 1–3 m. tall, with stout spreading branches, large 3–5-pinnate leaves, and long axillary panicles. Petioles 15–30 cm. long; leaflets submembranaceous, glabrous above, slightly pubescent along the veins beneath, subsessile to short-petiolulate, long-ovate to oblong-ovate, 4–15 cm. long, 3–10 cm. wide, the apex abruptly acuminate, the base rounded or cordate, the lateral ones often oblique, the margins coarsely serrate, the lateral nerves about 5–8 on each side, subconspicuous above, distinct and elevated beneath, the tertiary veins inconspicuous above, conspicuous beneath; petiolules 0–2.5 cm. long, the terminal one to 5 cm. long. Inflorescence to 50 cm. long, the branches compound or simple; flowers in umbels, these racemosely arranged on the branches, few- to many-flowered, 1.5–2.5 cm. across, the peduncles 1.5–5 cm. long, slightly pubescent, the bracts small and scale-like, the pedicels 5–10 mm. long, slightly pubescent. Calyx glabrous, 1.5 mm. long, the margin 5-dentate. Petals 5, triangular-ovate, 1.5 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles 5, distinct, erect. Fruit globose, 3 mm. across, strongly 5-angled, the styles 5, free or united at base.

HOPEI: Eastern Tomb, *H. T. Tsai 50277* (AA); Pao-feng-tze, *C. W. Wang 60812* (AA); Liang-ho-kou, *T. K. Wang & T. S. Wen 694* (AA).

MANCHURIA: Mukden, f. Jula-dsian, *Maximowicz s. n.* (W); no precise locality, *V. Komarov 1152* (AA).

ANHWEI: Whang-shan, *R. C. Ching 2957* (AA, W).

SZECHUAN: Hung-to-hao and Pan-lan-shan, west of Kuan-hsien, *Wilson 4285* in part (AA).

KWANGSI: Yeo-mer-shan, north of Hin Yen, *R. C. Ching 7151* (LU, NY); no data, *Z. S. Chung 83497* (AA).

ADDITIONAL DISTRIBUTION: Japan.

6. **Aralia dumetorum** Hand.-Maz. Symb. Sin. **7**: 701. 1933.

A suffrutescent herb 1–1.5 m. high, with tripinnate leaves and terminal paniculate inflorescences. Leaves triangular in outline, about 17 cm. long, the pinnae 5–9-foliolate, the ultimate pinnules 3-foliolate; petioles to 4 cm. long; leaflets subchartaceous, short-petiolulate, white-furfuraceous-setose along the veins on both surfaces, ovate to ovate-oblong, 2–4.5 cm. long, 1–2 cm. wide, the apex long-acuminate, the base cordate to subcordate, the margins double-serrate, the teeth mucronate, the lateral nerves about 5–7 on each side, conspicuous on both surfaces, the tertiary veins obscure; petiolules 8–20 mm. long, the terminal one to 45 mm. long. Inflorescence a terminal panicle, the main axis to 15 cm. long, with several axillary long-stalked 1–3-umbellate inflorescences added below, the umbels 12–18-flowered, the peduncles about 2.5 cm. long, slightly pilose, the bracts lanceolate, to 5 mm. long, the pedicels to 7 mm. long. Calyx-margin dentate, the lobes triangular. Petals ovate. Ovary 5-celled, the styles 5, distinct, 0.5 mm. long, erect. Fruit globose, about 7 mm. across, black.

SIKANG: Southwest of Tachienlu, *Wilson 4185* (AA).

This species was originally described by Handel-Mazzetti from Yunnan. It is characterized by the terminal paniculate inflorescence with additional smaller axillary ones below.

7. **Aralia spinifolia** Merr. Philip. Jour. Sci. **15**: 294. 1919; Hand.-Maz. Beih. Bot. Centralbl. **52B**: 172. 1934.

An erect shrub about 3 m. high, with bipinnate, prickly and setose leaves, and large, lax, prickly and setose panicles. Leaves large, the rachis, partial rachises, and leaflets on both surfaces covered with scattered, long, slender, nearly straight prickles and with more numerous slender, spreading setae, the prickles 3–10 mm. long, the setae 1.5–3 mm. in length; pinnae 5–9-foliolate, about 30 cm. long; leaflets membranaceous, subsessile, dark brown or olivaceous when dry, oblong-ovate, 9–12 cm. long, 4–6 cm. wide, the lower surface somewhat paler than the upper, with few scattered spines along midrib and nerves, with more numerous setae scattered all over the epidermis on both surfaces, the apex acuminate, the base rounded, often slightly oblique, the margins serrate, the teeth apiculate, the lateral nerves about 5 or 6 on each side, subconspicuous, the tertiary veins obscure above, slightly impressed beneath. Inflorescence with scattered prickles and dense setae; flowers in umbels, these many-flowered, 2.5 cm. in diameter, the peduncles 1–6 cm. long, setose and prickly, the pedicels 10–15 cm. long, setose. Calyx glabrous, 1.5 mm. long, distinctly 5-dentate, the lobes deltoid, acute, broad. Petals 5, triangular-ovate, 1.5 mm. long, broad. Stamens 5. Ovary 5-celled, the styles 5, distinct. Fruit ovoid, glabrous, about 5 mm. long, prominently 5-angular and deeply 5-sulcate.

KIANGSI: Lungnan District, Oo Chi Shan, near Lam Uk Village, *S. K. Lau 4657* (AA, W); Kiennan District, Sai Hang Cheung, near Tung Li Village, *S. K. Lau 4380* (AA, W).

KWANGTUNG: Chan Tung Hill, *C. O. Levine 3242* (HOLOTYPE, NY, isotype, LU); Yen-wong-chai, Yao-shan, *S. S. Sin 11458* (NY); Wung Yuen District, Tsing Wan Shan, Wong Chuk I, *S. K. Lau 2436* (G).

KWANGSI: An Tsai, *F. A. McClure 3533 = LU19098* (LU, NY).

FUKIEN: No data, *H. H. Chung 7831* (NY).

This species is characterized by its prickly and setose leaves and inflorescences. The Fukien specimen cited above is doubtfully referred to this species; it consists of a portion of a leafy specimen and a separate portion of an inflorescence. The leaves are doubtless those of *Aralia spinifolia* Merr., but the inflorescence is only

ferruginous-tomentose and not setose nor spiny and resembles that of *A. chinensis* Linn.

8. **Aralia armata** (Wall.) Seem. Jour. Bot. **6**: 134. 1868, Revis. Heder. 91. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 723. 1879; Harms, Bot. Jahrb. **23**: 18. 1896; Viguier in Lecomte, Fl. Gén. Indo-Chine **2**: 1162. *f. 137, 1–4.* 1923; Chung, Mem. Sci. Soc. China **1**: 189. 1924; Merr. Lingnan Sci. Jour. **6**: 283. 1931; Hu, Wang, & Hsia, Fan Mem. Inst. Biol. Bull. Bot. Ser. **8**: 532. 1938.

Panax armatus Wall. List no. 4933. 1832, *nomen nudum;* G. Don, Gen. Syst. **3**: 386. 1834; Walp. Rep. **2**: 429. 1843.

Panax Finlaysonianus Wall. List no. 4936. 1832, *nomen nudum;* G. Don, Gen. Syst **3**: 386. 1834; Walp. Rep. **2**: 429. 1843.

Aralia Finlaysoniana Seem. Jour. Bot. **6**: 134. 1868, Revis. Heder. 91. 1868.

A sparingly prickly shrub, with large 3-pinnate leaves, and prickly, large, paniculate inflorescences. Prickles conical, short, often recurved, the bases broadened. Leaves usually 3-pinnate, with a pair of leaflets at each division of the rachis, the ultimate pinnules 5–9-foliolate, the rachis and partial rachises and petioles prickly; leaflets chartaceous, subsessile, pilose on both surfaces especially along the veins, ovate-oblong, 4–11 cm. long, 2–5 cm. wide, the apex acuminate, the base rounded or cordate, the margins serrate, the lateral nerves 4–6 on each side, subconspicuous, the tertiary veins inconspicuous. Inflorescence a large panicle up to 50 cm. long, prickly, the lower part of the rachis glabrous, the upper part pubescent; flowers in umbels, these many-flowered, 2–2.5 cm. across, the peduncles 1–5 cm. long, the pedicels 1–1.5 cm. long, pubescent. Calyx 2 mm. long, glabrous, distinctly 5-dentate. Petals 5, triangular-ovate, 2 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles 5, distinct, erect. Fruit globose, 4 mm. across, prominently 5-angular.

YUNNAN: Between Keng Hung and Muang Hing, *J. F. Rock 2655* (AA); Ping-pien Hsien, *H. T. Tsai 61854* (AA); Che-li Hsien, Sheau-meng-yeang, *C. W. Wang 75703* (AA), *75850* (AA), *75990* (AA); Che-li Hsien, Dah-meng-lung, *C. W. Wang 77692* (AA); Che-li Hsien, Ban-chiou-chian, *C. W. Wang 79766* (AA).

KWEICHOW: Lohu, *Y. Tsiang 7235* (NY); Do-wan, Chenfeng, *S. W. Teng 90890* (AA).

KWANGSI: Tsin Hung Shan, north of Hin Yen, *R. C. Ching 7064* (AA); Bako Shan, west of Poseh, *R. C. Ching 7680* (AA); San-chiang Hsien, Lao Pao K'ou, *A. N. Steward & H. C. Cheo 1039* (AA); Shang-sze District, Shap Man Taai Shan, Nam She Village, *W. T. Tsang 24745* (AA).

KWANGTUNG: Hongkong, *C. Ford s. n.* (AA, NY); Little Hongkong, *Henry s. n.* (NY).

HAINAN: Ng Chi Leng, *F. A. McClure CCC8474* (LU, NY); Hung Mo Tung, *Tsang & Fung 685 = LU18219* (NY); Taam-chau District, Sha Po Shan, Taai Shui ravine, *W. T. Tsang 680 = LU16179* (AA, NY); Taam-chau District, Hoi Ta Shan, *W. T. Tsang 825 = LU16324* (AA, NY, W); Dung Ka, *N. K. Chun & C. L. Tso 43586* (AA, NY, W); Ching-mai District, Pak Shik Ling, Ku Tung Village, *C. I. Lei 930* (AA); Po-ting, *F. C. How 71964* (AA); Tai-pin, *J. L. Gressitt 1072* (AA).

ADDITIONAL DISTRIBUTION: India, Burma, Indo-China, and the Malay Peninsula.

A species characterized by its prickly stems, leaves, and inflorescences.

9. **Aralia foliolosa** (Wall.) Seem. Jour. Bot. **6**: 134. 1868, Revis. Heder. 91. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 723. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 419. 1911; Chung, Mem. Sci. Soc. China **1**: 189. 1924.

Panax foliolosus Wall. List no. 4928. 1832, *nomen nudum.*

A large, very prickly shrub, glabrous or nearly so, with large, 2- or 3-pinnate leaves and large lax panicles. Prickles short, strong, spreading. Leaves with a pair of leaflets at each division of rachis, the ultimate pinnules 5–9-foliolate, the rachis and partial rachises slightly prickly; leaflets chartaceous, glabrous or minutely pilose above, slightly pilose on nerves beneath, sessile to short-petiolulate, elliptic, 3.5–8 cm. long, 1.5–3 cm. wide, the apex acuminate, the base usually rounded, the margins remotely serrate, the lateral nerves about 6–8 on each side,

subconspicuous above, manifest beneath, the tertiary veins slightly impressed above, subconspicuous beneath; petiolules 0–3 mm. long. Inflorescence a large lax panicle, the branches 30–45 cm. long, glabrous, slightly prickly or unarmed; flowers in umbels, these 10–15-flowered, the peduncles 1–3 cm. long, glabrous or nearly so, the bracts narrowly oblong, to 1 cm. long, membranaceous, persistent, the pedicels 2–5 cm. long, glabrous or nearly so, the bracteoles 1 mm. long, persistent. Calyx glabrous, 2 mm. long, 5-dentate. Petals 5, 2 mm. long, glabrous. Stamens 5, the filaments 3 mm. long. Ovary 5-celled, the styles 5, distinct.

YUNNAN: Szemao, *Henry 11271* (AA, NY).
ADDITIONAL DISTRIBUTION: India.

This species is very near *Aralia chinensis* var. *nuda* Nakai, differing particularly in the glabrous or almost glabrous pedicels and peduncles.

10. **Aralia undulata** Hand.-Maz. Symb. Sin. **7**: 705. *t. 12, f. 6.* 1933.

A sparingly armed shrub, 3–6 m. tall, with large bipinnate leaves and large terminal corymbose panicles. Prickles short, conical. Leaves to 60 cm. long, glabrous; leaflets chartaceous, glaucous beneath, short-petiolulate, ovate to ovate-lanceolate, 7.5–12.5 cm. long, 2.5–5 cm. wide, the apex long-acuminate, the base rounded, the lateral ones more or less oblique, margins slightly undulate-mucronate, the lateral nerves about 9 on each side, subconspicuous above, manifest beneath, the tertiary veins slightly impressed above, conspicuous beneath; petiolules 5 mm. long, the terminal to 2 cm. long. Inflorescence erect, the axis short, the branches subumbellately arranged, to 40 cm. long, racemosely branched; flowers in umbels, the peduncles about 4 cm. long, brownish, furfuraceous-hirsute, bearing a terminal umbel and with or without a few pedicels racemosely or subumbellately arranged beneath, the pedicels 6 mm. long, hirsute, the bracteoles lanceolate, to 17 mm. long, brown, submembranaceous, more or less ciliate at margins. Calyx glabrous, 1.5 mm. long, 5-dentate. Petals 5, oblong, 1.5 mm. long, reflexed. Stamens 5, the filaments 1.5 mm. long. Ovary 5-celled, the styles 5, distinct.

KWANGSI: No data, *R. C. Ching 7119* (LU); San-chiang Hsien, Ling Wang Shan, *A. N. Steward & C. C. Cheo 976* (AA, NY).

This species resembles *Aralia hypoleuca* Presl (1851) = *Aralia bipinnata* Blanco (1837) of the Philippines and Formosa in its leaflet margins, inflorescences, and bracteoles. The leaflets are only slightly undulate, while in *A. hypoleuca* they are distinctly and sharply so. Moreover, in *A. undulata* the inflorescence is more or less brown-hirsute, and with or without few flowers racemosely or subumbellately arranged on the peduncles below the terminal umbels. Handel-Mazzetti's original species is described from a juvenile specimen from Yünshan, southern Hunan. The specimens above referred to this species are flowering ones from Kwangsi.

11. **Aralia elata** (Miq.) Seem. Jour. Bot. **6:** 134. 1868, Revis. Heder. 90. 1868; Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 57. 1894; Nakai, Jour. Arn. Arb. **5:** 30. 1924, Fl. Syl. Koreana **16:** 46. *t. 16.* 1927.

Dimorphanthus elatus Miq. Comm. Phytogr. 95. *t. 12.* 1840; Walp. Rep. **2:** 430. 1843.
Aralia canescens Sieb. & Zucc. Abh. Akad. Muench. **4**(2): 202. 1845 (Fl. Jap. Fam. Nat. **1:** 94).
Dimorphanthus mandshuricus Rupr. & Maxim. Mém. Div. Sav. Acad. Sci. St. Pétersb. **9:** 133. 1859 (Prim. Fl. Amur.).
Aralia Mandshurica Seem. Jour. Bot. **6:** 134. 1868, Revis. Heder. 90. 1868.
Aralia mandshurica Maxim. Bull. Phys.-Math. Acad. Sci. St. Pétersb. **15:** 134. 1856.
Aralia manshurica Komarov, Act. Hort. Petrop. **25:** 123. 1907 (Fl. Mansch. III).
Aralia spinosa Miq. Ann. Mus. Bot. Lugd.-Bat. **1:** 7. 1863, *pro parte;* non Linn.
Aralia spinosa var. *canescens* Sarg. Silva North Am. **5:** 60. 1893.

Aralia chinensis var. *canescens* Koehne, Deutsch. Dendr. 432. 1893; Rehder in Bailey Cycl. Am. Hort. **1**: 88. 1900.

Aralia spinosa var. *glabrescens* Franch. & Sav. Enum. Pl. Jap. **1**: 191. 1875.

Aralia chinensis var. *glabrescens* Schneider, Ill. Handb. Laubholzk. **2**: 431. 1911; Rehder in Bailey, Stand. Cycl. Hort. **1**: 344. 1914.

Aralia chinensis var. *mandschurica* Rehder in Bailey, Cycl. Am. Hort. **1**: 11. 1900, in Bailey, Stand. Cycl. Hort. **1**: 344. 1914; Bean, Trees & Shrubs Brit. Isles **1**: 197. 1914; Chung, Mem. Sci. Soc. China **1**: 189. 1924.

A shrub or tree 5–6 m. tall, the stems usually prickly, the leaves large, bipinnate, the inflorescence large, terminal, corymbose-paniculate. Leaves 40–80 cm. long, often prickly, with a pair of leaflets at each division of the rachis; leaflets subchartaceous, glabrous to slightly pubescent along veins on both surfaces when young, subsessile to short-petiolulate, ovate to ovate-elliptic, 5–12 cm. long, 3.5–7 cm. wide, the apex acuminate, the base rounded to subcordate, the margins serrate with rather broad teeth or remotely serrulate, the lateral nerves 6–8 on each side, prominent on both surfaces, the tertiary veins subconspicuous; petiolules 0.3 mm. long. Inflorescence pubescent, the axis short, the branches panicled, umbellately arranged, 30–45 cm. long, spreading; flowers in umbels, these few- to many-flowered, 1.5 cm. across, the peduncles 1–4 cm. long, the pedicels 6–7 mm. long, pubescent, the bracteoles linear, acute, 3 mm. long, pubescent. Calyx 1.5 mm. long, glabrous, the margin 5-dentate, the lobes acute. Petals 5, triangular-ovate, 1.5 mm. long, reflexed. Stamens 5. Ovary 5-celled, the styles 5, distinct, recurved. Fruit globose, 3 mm. across, 5-angular.

MANCHURIA: Amur River, *R. Maack s. n.* (G); Amur, *Maximowicz s. n.* (G, NY); Kirin, *V. Komarov 1151* (AA); Mifun, *B. V. Skvortzov s. n.* (AA); Hailin, *B. V. Skvortzov s. n.* (AA); Mefuv, *P. H. and J. H. Dorsett 4205* (W); Hsiaoling, *B. V. Skvortzov s. n.* (AA).

ADDITIONAL DISTRIBUTION: Eastern Siberia, Korea, and Japan.

This species is closely related to *Aralia chinensis* Linn., differing in its usually thinner and less tapering leaflets with rather coarse and remote serrations. The inflorescence has a short main axis, with the spreading branches somewhat umbellately arranged.

12. **Aralia Searelliana** Dunn, Jour. Linn. Soc. Bot. **35**: 498. 1903; Chung, Mem. Sci. Soc. China **1**: 189. 1924.

A sparingly prickly tree to 5 m. high, with bipinnate leaves and large corymbose-paniculate inflorescence. Prickles short, conical, straight. Branches, leaves and inflorescences densely fulvous-strigose. Leaves to 2.5 m. long; leaflets coriaceous, sessile to subsessile, fulvous-strigose-tomentose above, densely so especially along veins beneath, ovate, 12–18 cm. long, 7–9 cm. wide, the apex acuminate, the base subcordate to cordate, the margins serrate, the lateral nerves 8–10 on each side, conspicuous beneath, the tertiary veins inconspicuous. Inflorescence to 2 m. long, densely fulvous-strigose, the rachis prickly; flowers in umbels, these many-flowered, about 2.5 cm. across, the peduncles 5–8 cm. long, the bracts lanceolate, to 2 cm. long, densely fulvous-strigose, the pedicels about 1 cm. long, fulvous-strigose, the bracteoles lanceolate, 1 cm. or less long, densely fulvous-strigose. Calyx 2 mm. long, glabrous, distinctly 5-dentate. Petals 5, triangular-ovate, 2 mm. long, glabrous. Stamens 5, the filaments 2.5 mm. long. Ovary 5-celled, the styles 4 or 5, erect, free.

YUNNAN: Szemao, *Henry 13426* (photo. of HOLOTYPE and merotype, AA, isotype, AA, NY, W); Ho-kou, *H. T. Tsai 52642* (AA).

This species is related to *Aralia Decaisneana* Hance, but may be readily distinguished by the fulvous-strigose pedicels and peduncles, and by the bracteoles being long, lanceolate, and covered with fulvous, long, strigose hairs.

13. **Aralia chinensis** Linn. Sp. Pl. 273. 1753; DC. Prodr. **4:** 259. 1830; G. Don, Gen. Syst. **3:** 389. 1834; Seem. Jour. Bot. **6:** 133. 1868, Revis. Heder. 90. 1868; Harms, Bot. Jahrb. **23:** 17. 1896; Harms ex Diels, Bot. Jahrb. **29:** 490. 1900; Harms & Rehder in Sargent, Pl. Wils. **2:** 566. 1916; Viguier in Lecomte, Fl. Gén. Indo-Chine **2:** 1160. 1923; Chung, Mem. Sci. Soc. China **1:** 189. 1924; Nakai, Jour. Arn. Arb. **5:** 31. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **14:** 115. 1924, **17:** 88, 384. 1929–30; Rehder, Jour. Arn. Arb. **8:** 181. 1927; Chien, Contr. Biol. Lab. Sci. Soc. China **3:** 68. 1927; Hand.-Maz. Symb. Sin. **7:** 703. 1933; Chien ex Pei, Contr. Biol. Lab. Sci. Soc. China **10:** 37. 1935; Lee, For. Bot. China 872. 1935.

Aralia chinensis var. *canescens* sensu Dippel, Handb. Laubholzk. **3:** 233. 1893, *pro parte;* Schneider, Ill. Handb. Laubholzk. **2:** 431. 1911; non Koehne.

Aralia spinosa sensu Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 338. 1888, *pro parte;* Courtois, Notes Bot. Chine Mus. Heude **2:** 55. 1933; non Linn.

A shrub or tree 2–8 m. tall, with usually prickly stems, large 2- or 3-pinnate leaves, and large terminal paniculate inflorescences. Leaves 40–80 cm. long, with a pair of leaflets at each division of the rachis, unarmed or with very few prickles; leaflets chartaceous to subcoriaceous, glabrous to slightly scabrid above, pubescent especially along veins beneath, subsessile to short-petiolulate, ovate or broad-ovate, 5–12 (sometimes to 19) cm. long, 3–8 cm. or more wide, the apex acuminate, the base narrowly rounded, the margins closely serrate (teeth small, often accumbent), the lateral nerves about 6–8 on each side, conspicuous above, elevated and prominent beneath, the tertiary veins subconspicuous on both surfaces; petiolules 0–3 mm. long. Inflorescence 25–40 cm. long, pubescent, the branches 20–35 cm. long; flowers in umbels, these many-flowered, 1–1.5 cm. across, the peduncles 1–4 cm. long, the bracts small, membranaceous, 3–4 mm. long, the pedicels 4–6 mm. long, pubescent. Calyx glabrous, 1.5 mm. long, 5-dentate. Petals 5, triangular-ovate, 1.5 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles 5, distinct. Fruit globose, 2–3 mm. across.

KANSU: Ling-si Hsien, *J. Hers 2428* (AA).

SHENSI: Lao-y-shan, *J. Giraldi s. n.* (AA).

SHANSI: Yuan-chu District, Shih-li-p'o-shan, *H. Smith 6484* (AA).

HONAN: Sunghsien, Shih Tze Miao, *J. Hers 1271* (AA); Lushih, Tang Ho, *J. Hers 948* (AA); Kikungshan, *A. N. Steward 9773* (AA, G, W).

HOPEI: Eastern Tomb, *C. F. Li 10058* (NY).

SHANGTUNG: Haishan Yuintaishan Ku, *Shangtung Univ. 1037* (AA).

KIANGSU: Haichow Hills, *J. Hers 2274* (AA); I-shing, *R. C. Ching 4868* (AA); I-shing, Hai-wei Monastery, *Y. L. Keng 2635* (AA).

ANHWEI: Chiu-hwa-shan, *S. C. Sun 1303* (AA, NY).

CHEKIANG: No precise locality, *Barchet 193* (W), *Chekiang Univ. LU77369* (LU); Sui-an Hsien, *H. H. Hu 235* (AA); Chin Yen, *R. C. Ching 2364* (AA, LU, W); Tsing Tien, *Y. L. Keng 54* (AA); Tien-tai-shan, *C. Y. Chiao 14297* (AA); Tien-mu-shan, *T. Tang and W. Y. Hsia 156* (AA).

KIANGSI: Kuling, *Wilson 1508* (AA), *A. N. Steward 4753* (AA); Taloushan, Teng-cheng, *Y. Tsiang 10348* (NY).

HUNAN: Hsinhwa, Hsikwangschan, *Handel-Mazzetti 805 = 12682* (AA).

HUPEH: No precise locality, *Henry 2104* (G, W), *2535* (W); Patung, Changyang Hsien, Hsing-shan Hsien, and south of Ichang, *Wilson 128* (AA, G, NY, W); western Hupeh, *Wilson 1334* (NY); Siau-ya-tsze, *W. Y. Chun 3622* (AA), *2967* (W); Patung Hsien, *H. C. Chow 708* (AA, NY); Chienshih Hsien, *H. C. Chow 1088* (AA, NY).

SZECHUAN and SIKANG: Kangting Hsien, Tachienlu, *W. P. Fang 3698* (AA); Kuan Hsien, *F. T. Wang 20778* (AA); Mo Hsien, *F. T. Wang 21912* (AA); Lo-shan Hsien, *F. T. Wang 23530* (AA); Mt. Omei, *Y. S. Liu 1483A* (AA), *T. C. Peng 184* (AA), *K. N. Yin 66* (AA).

YUNNAN: Shang-pa Hsien, *H. T. Tsai 56580* (AA), *58861* (AA); Chiu-Kiang, west of Champutong, *C. W. Wang 67470A* (AA); Upper Kiukiang Valley, Clulung, Narktai, *T. T. Yü 19603* (AA); Kiukiang Valley, Taron, Muchietu, *T. T. Yü 21029* (AA).

KWEICHOW: Li-kwan, Tsingchen, *S. W. Teng 90634* (AA).

FUKIEN: Kuliang Hills, near Foochow, *J. B. Norton 1362* (W); Minchow Hsien, Pehling, *H. H. Chung 2135* (AA); Kushan, Foochow, *H. H. Chung 8285* (AA).

This species is related to the American *Aralia spinosa* Linn. It differs from the latter in that it is usually a smaller plant, less prickly, and with leaflets subsessile or short-petiolulate instead of distinctly petiolulate.

13a. **Aralia chinensis** var. **nuda** Nakai, Jour. Arn. Arb. **5**: 32. 1924; Rehder, Jour. Arn. Arb. **8**: 181. 1927, **9**: 100. 1928, **15**: 116. 1934; Hand.-Maz. Symb. Sin. **7**: 703. 1933; Lee, For. Bot. China 872. 1935.

Aralia chinensis var. *glabrescens* sensu Harms & Rehder in Sargent, Pl. Wils. **2**: 567. 1911; Chung, Mem. Sci. Soc. China **1**: 189. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **14**: 261. 1924; non Schneider.

Aralia chinensis α *elata* Dippel, Handb. Laubholzk. **3**: 233. 1893.

Aralia stipulata Franch. Jour. de Bot. **10**: 304. 1896, Pl. Sin. Ecl. Prim. 23. 1897; Lévl. Cat. Pl. Yun-Nan 11. 1915; Chung, Mem. Sci. Soc. China **1**: 189. 1924; Hand.-Maz. Symb. Sin. **7**: 704. 1933; syn. nov.

Eleutherococcus Mairei Lévl. Rep. Sp. Nov. **13**: 342. 1914, Cat. Pl. Yun-Nan 11. 1915.

Leaflets glaucescent and glabrous beneath except the sparingly pubescent midrib. Inflorescences puberulous, the main axis glabrescent.

KANSU: Lien Hoa Shan, *J. F. Rock 13215* (AA), *13481* (AA); Upper Tebbu country, Yiwaku Valley, *J. F. Rock 14572* (AA); Lower Tebbu country, Wantsang Valley, *J. F. Rock 14673* (AA, W), *14825* (AA); Upper Tebbu country, Yiwaku, south of Drakana, *J. F. Rock 15085* (AA).

SHENSI: Tai-pei-shan, *W. Purdom 1* (AA).

HONAN: Lushih, Lao Kuin Shan, *J. Hers 1151* (AA) (sterile).

HOPEI: No locality, *Père Chanet s. n.* (AA); eastern Tomb, *H. T. Tsai 50222* (AA).

HUNAN: Changnung Hsien, *C. S. Fan and Y. Y. Li 307* (AA).

HUPEH: Southern Wu-shan, *Wilson 128A* (AA); Mt. Eriora, *C. Silvestri s. n.* (AA).

SZECHUAN: No precise locality, *Wilson 3692* (AA); Kuan Hsien, *Wilson 4386* (AA); Min Valley, Mao-chou, *Wilson 4560* (AA); Mt. Omei, *W. P. Fang 2876* (AA); Sungpan Hsien, *W. P. Fang 4389* (AA); Tsing-chuan-fin Hsien, *F. T. Wang 22362* (AA); Mt. Omei, *F. T. Wang 23346* (AA); Huei-li Hsien, *T. T. Yü 1529* (AA).

YUNNAN: South of Red River from Manmei, *Henry 9479* in part (AA, NY, W); Mengtze, *Henry 9479C* (NY); no precise locality, *E. E. Maire 6815* (NY), *7369* (NY); Lou Ke Luin, *R. P. Maire 6816* (NY); Yang-in Chan, *Delavay 2924* (holotype of *Aralia stipulata* Franch., photo. AA, NY, merotype, AA); Likiang, *C. Schneider 2335* (AA), *2675* (AA); Yuling Shan, Likiang, *Handel-Mazzetti 4381* (AA, W); between the Mekong and Salween, *Handel-Mazzetti 1009* (AA); Pe Yen Tsin, *S. Ten 533* (AA); no data, *Forrest 10814* (AA), *10934* (AA); Mekong-Salwin divide, *Forrest 19789* (AA, W); Chien-chuan-Mekong divide, *Forrest 21477* (AA); eastern slope of Mt. Dyinaloko, Likiang Snow Range, *J. F. Rock 10408* (AA, W); Wei-si Hsien, *H. T. Tsai 57886* (AA), *59765* (AA); no data, *H. T. Tsai 57355* (AA), *57450* (AA), *57665* (AA); Wei-si Hsien, Yeh-chih, *C. W. Wang 68220* (AA); no data, *T. T. Yü 7520* (AA), *13444* (AA); Chungtien, Haba, *T. T. Yü 13493* (AA); Muli, near Lamasery, *T. T. Yü 14162* (AA); northwestern Likiang, Tami-chung, *R. C. Ching 21455* (AA); Muli, Lamachang near Ngerya on the border of Chungtien, *K. M. Feng 2881* (AA).

KWANGTUNG: Canton, *C. O. Levine CCC1851* (G, LU).

Aralia stipulata Franch. seems to be identical with this variety and is here treated as a synonym. This variety has, in general, smaller leaflets and longer pedicels than the species.

13b. **Aralia chinensis** var. **dasyphylloides** Hand.-Maz. Symb. Sin. **7**: 704. 1933, Beih. Bot. Centralbl. **52B**: 172. 1934; Chun, Sunyatsenia **2**: 78. 1934.

Leaflets densely yellow-strigose above, densely yellow-strigose-tomentose especially along the veins beneath. Pedicels short, 2–3 mm. long.

KIANGSI: Kiennan District, Sai Hang Cheung near Tung Lei Village, *S. K. Lau 4224* (AA, W), *4363* (AA, W).

HUNAN: Hsinhwa, Hsikwangschan, *Handel-Mazzetti 806 = 12662* (AA, LU).

KWANGSI: Kwei-lin District, Che-fen-shan, Hsichang Village, *W. T. Tsang 28388* (AA).

KWANGTUNG: Lochang, *Y. Tsiang 1216* (AA).

14. **Aralia echinocaulis** Hand.-Maz. Symb. Sin. **7:** 704. *t. 11, f. 8.* 1933; Chun, Sunyatsenia **4:** 247. 1940.

A small tree about 3 m. tall, with densely armed branches, large bipinnate leaves, and a long terminal panicle. Prickles slender, straight, 7–14 mm. long. Leaves 35–50 cm. or more long, glabrous, the pinnae 5–7-foliolate; leaflets membranaceous to subchartaceous, glabrous and dark green above, pale and glaucous beneath, sessile or short-petiolate, ovate-oblong to lanceolate, 4–11.5 cm. long, 2.5–5 cm. wide, the apex long-acuminate, the base rounded to cuneate, the lateral ones oblique, the margins finely and remotely mucronulate to serrulate, the lateral nerves about 6–9 on each side, prominent on both surfaces, the tertiary veins slightly impressed above, subconspicuous beneath. Inflorescence subsessile, 30–50 cm. long, brownish, furfuraceous-hirsute, the axis soon glabrescent; flowers in umbels, these 12–20-flowered, the peduncles 2–5 cm. long, the bracts ovate-lanceolate, to 10 mm. long, the pedicels 15–30 mm. long, the bracteoles lanceolate, to 4 mm. long. Calyx glabrous, 5-dentate, the lobes triangular-ovate. Petals ovate-oblong, 2 mm. long. Stamens 5, the filaments 4 mm. long. Ovary 5-celled, the styles 5, distinct. Fruit globose, 5-angular, 2–3 mm. in diameter, the styles 1–1.5 mm. long, reflexed.

CHEKIANG: No precise locality, *Chekiang Univ. LU77370* (LU); Chang Hua, *F. N. Meyer 1569* (AA, NY); Wenchow, *R. C. Ching 1871* (AA, W); Tien-moo-shan, *R. C. Ching 5045* (AA); Tsing-yun District, *Y. L. Keng 451* (AA).

ANHWEI: Southern Chiu-hwa Shan, *R. C. Ching 2840* (AA, LU).

KIANGSI: Pinghsian, *Wang-Te-Hui 228* (isoparatype, AA); Kouling, Tsoongjen, *Y. Tsiang 10131* (NY).

HUNAN: Wukang, Mt. Yun-schan, *Handel-Mazzetti 691 = 12254* (ISOTYPE, AA, LU).

KWANGSI: Yeo-mar Shan, north of Hin Yen, *R. C. Ching 7119* (NY); Ling-chuan District, Ta-ling, Yang-wu Village, *W. T. Tsang 27936* (AA); Tsu Yuen District, *Z. S. Chung 83536* (AA).

KWANGTUNG: Kon-ken, Yao-shang, *S. S. Sin 9569* (LU, NY).

This species is similar to *Aralia chinensis* var. *nuda* Nakai in appearance. It may be distinguished by its thinner leaflets, densely armed branches, slender and long prickles, and longer pedicels and filaments. *Ching 7119,* cited above, is very fragmentary.

15. **Aralia Decaisneana** Hance, Ann. Sci. Nat. V. Bot. **5:** 215. 1866; Seem. Jour. Bot. **6:** 133. 1868, Revis. Heder. 90. 1868; Nakai, Jour. Arn. Arb. **5:** 32. 1924; Merr. & Chun, Sunyatsenia **5:** 152. 1940.

Aralia Planchoniana Hance, Jour. Bot. **4:** 172. 1866; Seem. Jour. Bot. **6:** 133. 1868, Revis. Heder. 90. 1868; syn. nov.

Aralia spinosa sensu Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 338. 1888, *pro parte;* Dunn & Tutch. Kew Bull. Add. Ser. **10:** 118. 1912; non Linn.

Aralia chinensis sensu Benth. Fl. Hongk. 135. 1861; Harms, Bot. Jahrb. **23:** 17. 1896; Merr. Lingnan Sci. Jour. **5:** 140. 1928; non Linn.

A sparingly prickly and fulvous-tomentose shrub to 3 m. high, with large bipinnate leaves and large terminal panicles. Branches, petioles, and inflorescences densely fulvous-tomentose. Prickles slender, short, straight. Leaves with a pair of leaflets at each division of the rachis, the pinnae 7–11-foliolate; leaflets coriaceous, fulvous-tomentose above, densely fulvous-tomentose beneath especially along the veins, subsessile to short-petiolulate, ovate to oblong-ovate, 8–15 cm. long, 4–8 cm. wide, the apex acuminate, the base rounded to subcordate, the margins serrulate, the lateral nerves 6–8 on each side, subconspicuous above, prominent beneath, the tertiary veins obscure; petiolules 0–5 mm. long, the terminal one to 5 cm. long. Inflorescence villose-tomentose, the branches to 50 cm. long; flowers in umbels, these 30–50-flowered, 2.5 cm. across, the peduncles 3–4 cm. long, the bracts 1 cm. long, the pedicels about 1 cm. long, tomentose, the bracteoles 3 mm. long, persistent. Calyx glabrous, 2 mm. long, distinctly

5-dentate. Petals 5, triangular-ovate, 2 mm. long, glabrous. Stamens 5, the filaments 2.5 mm. long. Ovary 5-celled, the styles 5, united at base, distinct above. Fruits globose, 4 mm. across, 5-angled.

KIANGSI: Lungnan District, Oo Chi Shan, near Lam Uk Village, *S. K. Lau 4756* (AA, W).

YUNNAN: Mengtze, *Henry 9479* in part (NY, W); Szemao, *Henry 9479A* (NY), *9479B* (AA, W).

KWEICHOW: Tushan, *Y. Tsiang 6884* (NY) (sterile).

KWANGSI: Wuchow, *Tang Sui Pan 6 = LU19126* (LU, NY); Me-Kon, Seh-feng-dar-shan, south of Nanning, *R. C. Ching 8459* (LU, NY); Waitsap District, Tou Ngaok Shan, near Tung Chung Village, *W. T. Tsang 23298* (AA); Wuchow, *C. C. Wang 257* (LU), *303* (LU); Shang-sze District, Shap Man Taai Shan, Nam She Village, *W. T. Tsang 24727* (AA, NY).

KWANGTUNG: Macao, *H. F. Hance 12693* (isotype of *Aralia Planchoniana* Hance, G); Honam Island, *C. O. Levine CCC418* (LU); Canton, *Levine CCC1702* (G, LU, W), *CCC1853* (G, LU, W); Ying Tak, Wan Tong Shan, *Tai Tsan LU14780* (LU); Fan Hsia Shan, *W. Y. Chun 5548* (AA); Hongkong, *N. K. Chun 40221* (NY, W); Lofoushan, *H. T. Ho 60146* (NY); Wung-young District, *S. K. Lau 756* (AA, NY).

HAINAN: Pat Ka Liang, Nodoa, *F. A. McClure 1350 = CCC8044* (AA, LU, NY); Fan Yah, *N. K. Chun & C. L. Tso 44007* (AA, NY, W); no precise locality, *C. Wang 33919* (AA, NY), *34583* (NY); no precise locality, *H. Y. Liang 63389* (AA, NY, W), *64627* (NY); Kan-en District, Chim Fung Mt. near Sha Mo Kwat Village, *S. K. Lau 4994* (AA); Manning, *F. C. How 73958* (AA).

FUKIEN: Amoy, Nanputo, *H. H. Chung 4824* (AA); Amoy, Nanputo near the Amoy District Court House, *H. H. Chung 4528* (AA, LU); Nanputo, *H. H. Chung 5900* (AA, LU).

ADDITIONAL DISTRIBUTION: Formosa.

This species is related to *Aralia dasyphylla* Miq., from which it may be distinguished by its pedicellate flowers and fruits. It also simulates *A. chinensis* var. *dasyphylloides* Hand.-Maz. in appearance, but the longer peduncles, larger umbels, and longer pedicels differentiate it from the latter. Many of the specimens cited above have been referred in herbaria to either *A. dasyphylla* or *A. chinensis* Linn. *Aralia Planchoniana* Hance is a smaller-leaved form of *Aralia Decaisneana*.

16. **Aralia Thomsonii** Seem. Jour. Bot. **6**: 134. 1868, Revis. Heder. 91. 1868; C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 723. 1879; Dunn, Jour. Linn. Soc. Bot. **39**: 419. 1911; Chung, Mem. Sci. Soc. China **1**: 189. 1924; W. W. Smith, Notes Bot. Gard. Edinb. **17**: 343. 1930.

A large armed shrub, all parts soft-fulvous-villose, with large 2- or 3-pinnate leaves and large paniculate inflorescence. Prickles short, strong. Leaves with a pair of leaflets at each division of the rachis, the ultimate pinnules 5–9-foliolate; leaflets chartaceous to subcoriaceous, soft-fulvous-villose especially along the veins on both surfaces, subsessile to short-petiolulate, elliptic, 7–15 cm. long, 3–7 cm. wide, the apex long-acuminate, the base rounded to subcordate, the margins sparingly (often very obscurely) serrate, the lateral nerves about 8–10 on each side, subconspicuous above, prominent beneath, the tertiary veins obscure above, subconspicuous beneath; petiolules 0–3 mm. long. Inflorescence to 50 cm. long, soft-fulvous-villose; flowers in umbels, these 15–20-flowered, the peduncles 1–5 cm. long, the bracts narrowly lanceolate, 6 mm. long, the pedicels 0.8–1 cm. long, villose, the bracteoles 4–5 mm. long, persistent. Calyx glabrous, 1.5 mm. long, 5-dentate. Petals 5, 1.5 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles 5, distinct. Fruits globose, 3.5 mm. across, 5-angled.

YUNNAN: No precise locality, *Forrest 18503* (AA); between Muang Hun and Muang Hai, *J. F. Rock 2417* (AA); Fo-hai, *C. W. Wang 74261* (AA), *74622* (AA), *74892* (AA), *77283* (AA); Che-li Hsien, Sheau-meng-yeang, *C. W. Wang 75510* (AA), *75696* (AA); Che-li Hsien, Meng-soong, Dah-meng-lung, *C. W. Wang 78394* (AA); Shunning, Tehseling, *T. T. Yü 17622* (AA).

ADDITIONAL DISTRIBUTION: India.

This species resembles *Aralia chinensis* Linn., differing in its long-pedicellate flowers. It is very near to *A. Decaisneana* Hance, from which it may be distinguished by its fewer-flowered umbels.

17. **Aralia caesia** Hand.-Maz. Symb. Sin. **7**: 702. 1933.

Aralia staphyleina Hand.-Maz. Symb. Sin. **7**: 703. *t. 11, f. 6.* 1933, syn. nov.

A shrub or tree, glabrous, unarmed, with usually 1-pinnate leaves and terminal subsessile panicles. Leaves 5–7-foliolate, 10–16 cm. long including petioles; petioles 2.5–7 cm. long; leaflets subcoriaceous, dark green above, glaucous beneath, the lower leaflets short-petiolulate, often compound and 3-foliolate, the upper sessile, the terminal sessile to petiolulate, generally ovate to orbicular, 2.5–6 cm long, 2–5 cm. wide, the apex shortly cuspidate to acuminate, the base rounded to truncate, the margins minutely denticulate, the lateral nerves 4–6 on each side, prominent on both surfaces, the tertiary veins conspicuous on both surfaces; petiolules 0–1 cm. long, the terminal 0–3 cm. long. Inflorescence to 30 cm. long, lax, glabrous, the branches to 15 cm. long; flowers in umbels, these 7–25-flowered, the peduncles 1.5–4 cm. long, the bracts lanceolate, scariose, about 5 mm. long, the pedicels 4 mm. long, elongating to 15 mm. in fruit, the bracteoles minute. Calyx glabrous, 2 mm. long, 5-dentate, the lobes ovate. Petals ovate-oblong, 2.5 mm. long, reflexed. Stamens 5. Ovary 5-celled, the styles 5, distinct, erect. Fruit globose, about 4–6 mm. across, 5-angled.

YUNNAN: No precise locality, *Henry 10622* (AA), *11244* (AA); Chungtien, *Handel-Mazzetti 4410* (ISOTYPE, AA); Sikang, Shinagcheng, Tungsung, *T. T. Yü 13406* (AA); northern flank of Haba Snow Range, *K. M. Feng 1326* (AA).

This species is near *Aralia Wilsonii* Harms, being unarmed, but is readily distinguished by its usually once pinnate leaves. Among the different species of *Aralia,* this most nearly approaches *Pentapanax,* particularly *P. yunnanensis* Franch., the two species serving as links between the two closely related genera. In *Aralia staphyleina* Hand.-Maz., as described, I fail to find any constant characters by which it may be differentiated from *A. caesia,* and hence I placed the former as a synonym.

18. **Aralia Wilsonii** Harms in Sargent, Pl. Wils. **2**: 567. 1916; Chung, Mem. Sci. Soc. China **1**: 189. 1924.

Aralia yunnanensis sensu Hand.-Maz. Symb. Sin. **7**: 703. 1933; non Franch.

An unarmed shrub 2–3 m. tall, with subglabrous to minutely puberulous branches, bipinnate leaves, and long terminal sessile panicles. Leaves long-petiolate, 20–40 cm. long including petiole, often with a pair of leaflets at each division of the rachis; leaflets chartaceous to coriaceous, glabrous, or scattered-strigose or tomentose on either or both surfaces, dark green above, glaucous beneath, sessile to subsessile or short-petiolulate, oblong-ovate to ovate-lanceolate, 2–5 cm. long, 1.5–2.5 cm. wide, the apex acute to acuminate, the base obtuse to rounded, rarely slightly cuneate, the lateral ones usually oblique, the margins sharply and slightly irregularly serrulate to double-serrate, the lateral nerves about 6 on each side, conspicuous on both surfaces, the tertiary veins elevated and distinct on both surfaces; petiolules 0–4 mm. long, the terminal one to 1.5 cm. long. Inflorescence-branches glabrous to subglabrous, racemosely or subumbellately arranged; flowers in umbels, these many-flowered, long-pedunculate; peduncles slender, 3–6 cm. long, the pedicels 12–18 mm. long, glabrous to subglabrous. Calyx glabrous, 2–3 mm. long, 5-dentate, the lobes ovate, obtuse. Petals 5, triangular-ovate, 2 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles 5, distinct, recurved. Fruit subglobose, distinctly 5-angled, 5 mm. in diameter.

SZECHUAN: Without precise locality, *Wilson 3717* (isoparatype, AA); Ching-chi Hsien, Fei-Yeun-ling, *Wilson 1964* (ISOTYPE, AA, W); affluentem fluminis Yalung versus Yenyuen,

Handel-Mazzetti 2066 (AA); inter Pechicho et Kalapa, *C. Schneider 1220* (AA); Yen-yuan Hsien, Kalapa, *C. Schneider 1221* (AA); Taitiaoko, *C. Schneider 3891* (AA); mountains between the Likiang and Shou-chu Rivers, between Wa-erh-dje and Garu, *J. F. Rock 16900* (AA); Muli, between Baurong and Kulu, west of Yalung River, *J. F. Rock 17820* (AA, NY, W).

YUNNAN: Between Likiang, Youngning and Youngpei, en route to Muli, *J. F. Rock 5083* (AA); Yangtze watershed, District of Likiang, eastern slopes of the Likiang Snow Range, *J. F. Rock 3953* (AA); western slope of Likiang Snow Range, Yangtze watershed, *J. F. Rock 8544* (AA); no data, *H. T. Tsai 57283* (AA), *57357* (AA); Muli, between Ngerya to Zukou, *K. M. Feng 2916* (AA).

This species is variable in the size and in the indumentum of its leaflets as well as the length and number of pedicels. However, the specimens cited above in general agree well with each other in most characters and should be treated as one species. Franchet described *Aralia yunnanensis* on the basis of two specimens. The first one, *Delavay 4027,* which should be designated as the type, is an herbaceous plant and is placed as a variety of *Aralia Fargesii* Franch. The second specimen, *Delavay 4581* in the herbarium of Paris Museum, labeled as *Aralia yunnanensis* Franch. var. *reticulata* Franch. (photo. and merotype in AA), I consider to be identical with the smaller-leaved forms cited above under *Aralia Wilsonii.* Other specimens of the form include *Rock 16900, 17820,* and *Feng 2916,* which are only slightly different from the others in the leaflets being more tomentose beneath, while most specimens are glabrous or nearly so.

19. **Aralia plumosa** sp. nov. Fig. 14.

Frutex inermis glaber. Foliis validis, totis 15–20 cm. longis, pluries 3-pinnatis, petiolo communi ad apicem dichotomiisque foliolis 2 majoribus instructis, illis petioli communis interdum decomposite 3–5-foliolatis, reliquis omnibus simplicibus; foliolis propriis coriaceis, supra scabridis, subtus plus minusve dense tomentosis, sessilibus vel breviter petiolulatis, petiolulis saepe ad basim barbatis, ovatis vel ovato-oblongis, 1.5–4 cm. longis, 1–2 cm. latis, apice acuminatis, basi rotundatis vel subcordatis, margine acute atque irregulariter serratis vel duplicato-serratis, nervis lateralibus utrinsecus 4 vel 5, utrinque conspicuis, venis tertiariis conspicuis; petiolulis 0–5 mm. longis. Inflorescentiis terminalibus paniculatis subsessilibus magnis, ad 30 cm. longis, glabris, ramulis racemose vel subumbellatim dispositis, floribus umbellatis, umbellis multifloris ad 3 cm. crassis, pedunculis 2–9 cm. vel ultra longis, pedicellis 1–1.5 cm. longis. Calyce glabro 2 mm. longo 5-dentato. Petalis 5 oblongo-ovatis, 3 mm. longis, glabris, reflexis. Staminibus 5, filamentis 2 mm. longis. Ovario 5-loculari, stylis 5 erectis ad basim connatis. Fructu globoso 4 mm. diametro pentagono.

YUNNAN: No data, *T. T. Yü 6320* (AA), 1937, *7337* (TYPE, AA), 1938.

This species is near *Aralia Wilsonii* Harms. The leaflets are scabrid on the upper surface and more or less densely tomentose beneath. In the compound leaves the lowest pairs of pinnae are usually subtended by an extra pair of smaller pinnae, the latter mostly 3–5-foliolate, but often one of each pair reduced to a simple leaflet.

20. **Aralia dasyphylla** Miq. Fl. Ind. Bat. **1**(1): 751. 1855, Bonplandia **4**: 138. 1856, Ann. Mus. Bot. Lugd.-Bat. **1**: 9. 1863; Seem. Jour. Bot. **6**: 136. 1868, Revis. Heder. 92. 1868; Forbes & Hemsl. Jour. Linn. Soc. Bot. **23**: 337. 1888; Harms, Bot. Jahrb. **23**: 19. 1896; Dunn & Tutch. Kew Bull. Add. Ser. **10**: 118. 1912.

A sparingly prickly shrub, with bipinnate leaves and large corymbose panicles, the flowers sessile and capitate at ends of peduncles. Prickles straight, short, conical, slender, to 5 mm. long. Young parts densely brown-pubescent. Leaves to 70 cm. long, the petioles, rachis, and partial rachises sparingly prickly or unarmed, densely brown-pubescent, the pinnae 7–9-foliolate; leaflets subcori-

Fig. 14. *Aralia plumosa;* *1.* leaf, × ½; *2.* portion of infructescence, × ½; *3.* flower, × 5; *4.* fruit, × 4; *5.* diagrammatic cross-section of fruit, × 4.

aceous, subsessile to short-petiolulate, densely brown-pubescent on both surfaces, ovate to oblong-ovate, 5.5–11 cm. long, 3–5 cm. wide, the apex acuminate, the base rounded to subcordate, the lateral ones slightly oblique, the margins mucronate-serrulate, the lateral nerves 7–10 on each side, subconspicuous above, prominent beneath, the tertiary veins inconspicuous; petiolules 0–5 mm. long, the terminal one to 4 cm. long, densely brown-pubescent. Inflorescence densely brown-pubescent, the lateral branches 20 cm. long, the flowers sessile, several together at ends of peduncles, capitate; peduncles long or short, 0.5–1.5 cm. long, densely pubescent, the bracteoles oblong, persistent. Calyx 2 mm. long, glabrous, the margin distinctly 5-dentate. Petals 5, 1.5 mm. long, glabrous. Stamens 5. Ovary 5-celled, the styles 5, connate at base, distinct above. Fruit globose, 3.5 mm. across, 5-angled.

KWEICHOW: Tai Ho Yen, Fan Ching Shan, *Steward, Chiao, & Cheo 829* (AA, NY, W).

KWANGTUNG: Ying Tak, Paak Tuen Shek, Taai Tsin, *W. T. Tsang & K. C. Wong 2320 = LU14181* (LU); Yang-chi, Yao Shan, *S. S. Sin 11517* (LU, NY); Tapu District, Tung Koo Shan, *W. T. Tsang 21777* (NY); Loh-chang District, Chong Yen Shan near Kan Fung, Tin Tong Kin, *W. T. Tsang 20811* (NY, AA); Wung Yuen District, Tsing Wan Shan, Wong Chuk I, *S. K. Lau 2323* (G).

ADDITIONAL DISTRIBUTION: Malay Archipelago.

This species is characterized by its sessile capitate flowers.

Excluded Species

Aralia Labordei Lévl. Bull. Acad. Géogr. Bot. **24:** 144. 1914 = *Toddalia asiatica* (L.) Lam. of the Rutaceae (See Rehder, Jour. Arn. Arb. **14:** 226. 1933).

XVII. Panax Linnaeus

Panax Linn. Syst. ed. 1. 1735, Gen. Pl. ed. 2. 105. 1742, ed. 5. 481. 1754, *pro parte.*

Glabrous herbs, the digitately compound leaves spreading from summit of stem, the inflorescences terminal, erect. Rootstock fleshy. Flowers hermaphrodite or polygamo-dioecious, in terminal usually solitary umbels, the pedicels articulated under flower. Calyx-margin obscurely 5-dentate. Petals 5, very narrowly imbricate and often cohering. Stamens 5, the filaments short, the anthers ovate to oblong. Ovary 2-, sometimes 3-celled. Disk fleshy, annular. Styles 2 or 3, distinct or united at base. Fruit ovoid or laterally compressed, 2- or 3-seeded.

About 5 species in North America and eastern and central Asia.

Type species: *Panax quinquefolius* Linn.

Linnaeus refers three species to the genus *Panax, P. trifoliatus, P. quinquefolius,* and *P. fruticosus.* The first one is an *Acanthopanax* and the last one is the type of the genus *Nothopanax.* Seemann was the first to restrict the genus *Panax* to that type characterized by *Panax quinquefolius* Linn. and he has been followed by Harms and the later workers.

1. **Panax schin-seng** Nees, Ic. Med. Suppl. **1:** *t. 70.* 1833, excl. var. 2 & 3; Nakai, Jour. Arn. Arb. **5:** 35. 1924.

   Panax ginseng Meyer, Bull. Phys.-Math. Acad. St. Pétersb. **1:** 340. 1843; Walp. Rep. **5:** 924. 1846; Seem. Jour. Bot. **2:** 320. 1864, **6:** 54. 1868, Revis. Heder. 99. 1868; Harms in Engl. & Prantl. Nat. Pflanzenfam. **3**(8): 59. 1894; Harms ex Diels, Bot. Jahrb. **29:** 490. 1900; Yabe, Enum. Pl. Manch. 98. 1912.

   Aralia quinquefolia var. *ginseng* Regel et Maack ex Regel, Gartenfl. **11:** 314. *t. 375.* 1862; Guide to Kew Museum **1:** 87. 1886; Burkill, Kew Bull. **1902:** 6. 1902.

   Aralia ginseng Baill. Hist. Pl. **7:** 152. 1880.

   Aralia quinquefolia sensu Forbes & Hemsl. Jour. Linn. Soc. Bot. **23:** 338. 1888, non A. Gray.

This species is found in Manchuria. I have seen only a photograph of a specimen in the Kew Herbarium (Manchuria: Kirin, *V. Komarov 1153,* photo. in NY), no actual specimen being available for study. The distinctions between *Panax schin-seng* Nees and *P. pseudo-ginseng* Wall. are not very clear, the relationships between the two species needing further study on the basis of ample collections. For the time being, I refer all central, western, and southern Chinese plants to the Indian species, *P. pseudo-ginseng* Wall., and its varieties.

Panax schin-seng Nees was illustrated by a colored plate. It includes three varieties, of which two really belong to two distinct species. Following Nakai, the name is used here with the understanding that the first variety is accepted as the type.

Meyer's descriptions of the Asiatic species of *Panax,* as well as reference to Nees' illustrations, are given below.

"Panax Ginseng m.

P. radice simplici palmata; squama ad basin caulis carnosa persistente; foliolis 5 ellipticis sensim acuminatis subaequaliter serratis, serraturis parvis hinc serratura minuta notatis.

Ginseng Jartoux in Lettres édifiant. ed. 1732 vol. 10 p. 159 c. ic. rudi sed haud mala; Du Halde Descr. regn. Chin. ed. germ. II. p. 178 c. ic. (copia figur. supra cit.).—Pan. quinquefolium B. coreense Siebold in Verhandl. d. batav. Genootsch. Vol. 12.—P. Schinseng 1 var. coraiensis Nees ab Esenb. Ic. pl. medicinal. Suppl. I. tab. 16 fig. A (ic. quoad folia haud omnino bona).

Gin-seng, Gen-seng, Gin-sen, Gin-sem, Gin-zing, Jin-chen, Jän-säm, Jän-som, Zin-gin, Schin-schen, Schin-scheng, Schin-sen, Som, Sin-som (chin.).
Nisi, Nisji, Ninzi, Ninzini, Nindsin, Nindzin, Ninsing, Dsindson, Sjusjin (japon.).
Orkoda, Orhota, Orochota (mantsch.).
Soasai (tatar.).
Kitipin Kumunün (mongol., ap. Kamens.).
Hab. in imperii chinensis provincia Mantschiria dicta, nec non in Corea.

Panax Pseudo-Ginseng Wall.

P. radice fasciculata, fibris fusiformibus, rhizomate subrepente; squama ad basin caulis membranacea decidua; foliolis 5 oblongis v. lanceolato-oblongis caudato-acuminatis profunde biserratis, serraturis circumcirca setoso-serrulatis.

P. Pseudo-Ginseng Wallich. plant. asiat. rar. Vol. II, p. 30 tab. 137; Pharmaceut. Centralbl. 1832 No. 23 p. 353 tab. III (copia ic. Wall.).—P. Schin-seng 3 var. nepalensis Nees ab Esenb. l. c. fig. C. (fig. repet. Wall.).

Panax japonicus m.

P. rhizomate repente, fibris lateralibus fusiformibus; squama decidua ad basin caulis; foliolis 5 oblongis acuminatis profunde serratis.

P. quinquefolium A japonicum Siebold l. c.;—P. Schinseng var. *2* japonica Nees ab Esenb. l. c. fig. B.

Plantam non vidi, sed ex icone speciem omnino distinctam esse credo.
Hab. in Japonia."

2. **Panax pseudo-ginseng** Wall. Trans. Med. Phys. Soc. Calcutta **4**: 117. 1829, Pl. Asiat. Rar. **2**: 30. *t. 137*. 1831; Meyer, Bull. Phys.-Math. Acad. St. Pétersb. **1**: 340. 1843; Walp. Rep. **5**: 924. 1846; Seem. Jour. Bot. **6**: 54. 1868, Revis. Heder. 99. 1868; Harms in Engl. & Prantl. Nat. Pflanzenfam. **3**(8): 60. 1894; Hu, Wang & Hsia, Bull. Fan. Mem. Inst. Biol. Bot. **8**: 352. 1938.

Aralia pseudo-ginseng Benth. ex C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 721. 1897.
Aralia quinquefolia var. *pseudo-ginseng* Burkill, Kew Bull. **1902**: 7. 1902.
Aralia quinquefolia var. *notoginseng* Burkill, l. c. syn. nov.
Aralia quinquefolia var. *elantior* Burkill, op. cit. 8, syn. nov.
Panax schin-seng sensu Chien, Contr. Biol. Lab. Sci. Soc. China **3**: 68. 1927; W. W. Smith, Notes Bot. Gard. Edinb. **17**: 318. 1930; Hand.-Maz. Symb. Sin. **7**: 706. 1933; non Nees.

An herb up to 0.5 m. or more high, the rootstock horizontal, fusiform, the stem straight, slender, smooth, the scales at base often fleshy and often deciduous. Leaves 3 or 4 at tip of stem, palmately 5-, rarely 3-foliolate, long-petiolate; petioles slender, glabrous, to 7 cm. long; leaflets sessile to petiolulate, membranaceous, more or less translucent, with abundant or scattered setae along the veins above, sometimes almost glabrous, elliptic-obovate to obovate-lanceolate, 5–15 cm. long, 1–5 cm. wide, the basal ones often smaller and ovate, the apex long-acuminate, the base acute to rounded, the margins inconspicuously serrate to double-serrate, the teeth acute, the lateral nerves about 5–9 on each side, slightly raised on both surfaces, the tertiary veins inconspicuous to subconspicuous; petiolules 0–4.5 cm. long. Inflorescence a terminal, generally solitary umbel, the peduncles slender, straight, up to 20–30 cm. long, the umbels many-flowered; flowers polygamo-monoecious, the pedicels 10–12 mm. long. Calyx glabrous, the margin obscurely 5-dentate. Petals 5, oblong, acute, about 2 mm. long, glabrous. Stamens 5, the filaments 2 mm. long. Ovary 2-celled, the disk flattened or concave, the styles 2, slightly curved. Fruit globose, red, slightly flattened laterally, 6–7 mm. across, 2-seeded, the seeds globose, white, the styles 2, distinct or united halfway below, divergent and reflexed at tip.

Kansu: Gargaunar, south of Old Taichow, *R. C. Ching 899* (W).
Chekiang: Tien Tai Shan, Huating, *C. Y. Chiao UN14466* (W).
Kiangsi: Lu Shan, Kuling, *A. N. Steward UN4695* (LU, W).
Hupeh: No precise locality, *Henry 5396* (G), *5396B* (G), *5396F* (G), *5396H* (W), *6835* (G, W).

SZECHUAN: No precise locality, *Henry 5396A* (G), *Wilson 1080* (W), *1978* (W), *1979* (W).

SIKANG: Chi-na-tung, Tsa-wa-rung, *C. W. Wang 65255* (AA), *65334* (AA); La-jau, Tsa-wa-rung, *C. W. Wang 65832* (AA).

YUNNAN: Mengtze, *Henry 11407* (isosyntype of *Aralia quinquefolia* var. *notoginseng* Burkill, NY, W); Szemao, *Henry 11407B* (NY, W), *12259A* (W), *12259B* (NY); Lichiang, *C. Schneider 3011* (G, W), *3617* (G); Yangtze watershed, District of Likiang, eastern slopes of Likiang Snow Range, *J. F. Rock 5752* (W); eastern flank of Lichiang Range, *Forrest 22589* (W); Che-tse-lo, *H. T. Tsai 58337* (AA); Shang-pa Hsien, *H. T. Tsai 54231* (AA), *56563* (AA); Wei-se Hsien, *H. T. Tsai 59743* (AA), *C. W. Wang 63826* (AA), *63975* (AA); Huann-fu-ping, A-tun-tze, *C. W. Wang 69159* (AA); A-tun-tze, *C. W. Wang 69879* (AA), *69904* (AA); Li-kiang Hsien, *C. W. Wang 70729* (AA); Fo-hai, *C. W. Wang 77251* (AA); no data, *T. T. Yü 7461* (AA), *8573* (AA), *12413* (AA); Chungtien, Tungwahlung, Mt. Longchia, *T. T. Yü 13453* (AA); Kengma, Chiuchayko, *T. T. Yü 17278* (AA); Salwin-Kiukiang Newachlung, *T. T. Yü 19290* (AA); Upper Kiukiang Valley, Clulung, Chuherton, *T. T. Yü 19683* (AA); Mekong-Salwin Divide, Sila, *T. T. Yü 22448* (AA); northern flank of the Haba Snow Range, *K. M. Feng 2361* (AA); Litiping, between Likiang and Weihsi, *R. C. Ching 20826* (AA); Ganhai-tze, southwest of Likiang Snow Range, *R. C. Ching 21205* (AA); Likiang Snow Range, *R. C. Ching 30694* (AA).

KWANGSI: Shuen-yuen, *Z. S. Chung 81684* (AA).

ADDITIONAL DISTRIBUTION: Northern India to Indo-China.

This species is variable in the shape of its leaflets and in the length of its petiolules. The upper surface of the leaflets may be glabrous or sparsely or abundantly setose along the veins. Burkill distinguishes his var. *notoginseng* of China from var. *pseudo-ginseng* of India in that the former has less abundant setae and slightly larger leaflets. He cites *Henry 11407* as representing the former and *Wallich 3730* (in G) the latter, but the actual specimens do not reveal striking differences. *Henry 11407* has fairly abundant setae, in fact more abundant than most of the Chinese specimens secured by subsequent collectors. In both the Indian and Chinese plants, the setae may vary from great abundance to complete absence, while the leaflets are variable in their size and shape and in the length of their petiolules. Thus it seems not desirable to consider the Chinese plants to be distinct from those of India. Burkill described his var. *clantior* from Hupeh, based on Henry's specimens, without mentioning the number. According to his description, this variety falls within the limits of *Panax pseudo-ginseng* Wall. as I here interpret it.

2a. **Panax pseudo-ginseng** var. **angustifolius** (Burkill) comb. nov.

Aralia quinquefolia var. *angustifolia* Burkill, Kew Bull. **1902**: 7. 1902.

Aralia pseudo-ginseng var. *angustifolia* Craib, Fl. Siam. Enum. **1**: 794. 1931.

Leaflets distinctly petiolulate, lanceolate, about 12 cm. long, 1.5–2 cm. wide, the apex long-acuminate, the base rounded to acute or subcordate, the margins minutely serrate, coarsely setose above.

SZECHUAN: No precise locality, *E. Faber 141* (NY).

ADDITIONAL DISTRIBUTION: India to Siam.

2b. **Panax pseudo-ginseng** var. **bipinnatifidus** (Seem.) comb. nov.

Panax bipinnatifidus Seem. Jour. Bot. **6**: 54. 1868, Revis. Heder. 100. 1868; Harms in Engl. & Prantl, Nat. Pflanzenfam. **3**(8): 60. 1894; Smith, Notes Bot. Gard. Edinb. **14**: 251. 1924; Hand.-Maz. Symb. Sin. **7**: 706. 1933.

Aralia bipinnatifida C. B. Clarke in Hook. f. Fl. Brit. Ind. **2**: 722. 1879.

Leaflets bipinnatifid, the lobes serrate.

HUPEH: No precise locality, *Henry 6834* (G, NY, W).

SZECHUAN: Muli, *Forrest 21362* (W); Sungpan Hsien, *W. P. Fang 4385* (G, NY, W).

YUNNAN: Pin-chuan Hsien, *H. T. Tsai 53649* (AA); Mekong-Salwin divide, Longjrela, *T. T. Yü 23247* (AA).

ADDITIONAL DISTRIBUTION: Northern India.

Yü 23247 has the leaflets shallowly cleft. *Fang 4385* has leaflets that vary from non-cleft ones to those with few clefts and others which are completely bipinnatifid. They apparently represent intermediate forms between the species and the variety. In this variety, the leaflets also vary from sessile to petiolulate.

2c. **Panax pseudo-ginseng** var. **major** (Burkill) comb. nov.

Aralia quinquefolia var. *major* Burkill, Kew Bull. **1902**: 7. 1902.

Leaflets elliptic to elliptic-ovate, 12–15 cm. long, 5–6 cm. wide, sometimes much larger, the base rounded to obtuse, the margins regularly serrate, with few setae along the veins.

HUPEH: No precise locality, *Henry 5396C* (isosyntype of *Aralia quinquefolia* var. *major* Burkill, W), *5396G* (isosyntype of *Aralia quinquefolia* var. *major* Burkill, AA, G, W), *Henry 7728* (isosyntype of *Aralia quinquefolia* var. *major* Burkill, G, W), *Henry 7121* (NY); south of Wushan, *Wilson 1208* (NY, W).

YUNNAN: Muli, Ngerya, on the border of Chungtien, *K. M. Feng 2792* (AA).

Excluded Species

Panax fallax Miq. Jour. Bot. Néerl. **1**: 118. 1861.

Forbes and Hemsley (Jour. Linn. Soc. Bot. **23**: 339. 1888) mention this as "an obscure imperfectly described plant, perhaps not of this natural order." Merrill (Sunyatsenia **1**: 26. *t. 8*. 1930), on the basis of an examination of the actual type, identifies it as *Peucedanum decursivum* (Miq.) Maxim., an umbelliferous plant, his paper being illustrated by a photographic reproduction of Miquel's type.

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List of cited specimens

In the following list, genera are indicated by these abbreviations: *Ac.* = *Acanthopanax; Ar.* = *Aralia; B.* = *Brassaiopsis; De.* = *Dendropanax; Di.* = *Diplopanax; Hed.* = *Hedera; Het.* = *Heteropanax; K.* = *Kalopanax; Ma.* = *Macropanax; Me.* = *Merrilliopanax; N.* = *Nothopanax; Pa.* = *Panax; Pe.* = *Pentapanax; S.* = *Schefflera; Te.* = *Tetrapanax; Tr.* = *Trevesia; Tu.* = *Tupidanthus.*

Allison, A. 181. *Ac. gracilistylus.*

Arnold Arboretum, cult. 588 = 7029. *Ac. sessiliflorus* var. *parviceps.*

Barchet, S. P. 193. *Ar. chinensis;* 194. *K. pictus;* 197. *Ac. Henryi;* 198. *Hed. nepalensis* var. *sinensis.*

Bailey, L. H. s. n. *Ac. evodiaefolius; K. pictus* var. *magnificus.*

Bock, C. & A. Rosthorn. 2573. *Ac. setchuenensis.*

Bodinier, E. 2459 (*Laborde, J.*). *S. Bodinieri;* 2696 (*Martin, L.*) *B. ciliata.*

Canton Christian College. See Lingnan University.

Cavalerie, J. 871. *N. Delavayi;* 1576. *S. Bodinieri;* 2144. *T. palmata;* 2566. *B. tripteris;* 2658. *S. venulosa.*

Chanet. s. n. *Ar. chinensis* var. *nuda.*

Champion, J. G. s. n. *De. proteus;* 390. *De. parviflorus.*

Chang, Kwei Shang. See Lingnan University.

Chekiang University (Lingnan University Accession numbers). s. n. *De. Chevalieri;* LU77287. *Ac. evodiaefolius;* 77369. *Ar. chinensis;* 77370. *Ar. echinocaulis.*

Chen, F. H. 333. *Ac. sessiliflorus;* 426. *Ac. senticosus.*

Chen, L. 68. *S. octophylla.*

Chen, S. 889. *Hed. nepalensis* var. *sinensis.*

Cheng, W. C. 4146. *Ac. Sieboldianus.*

Cheo, C. C. (University of Nanking number). 18247. *Ac. gracilistylus* var. *pubescens.*

CHEO, T. Y. & L. YEN. 322. *K. pictus* var. *Maximowiczii.*

CHIAO, C. Y. (University of Nanking numbers). 1162. *Ac. trifoliatus;* 1806. *Ac. leucorrhizus* var. *fulvescens;* 2052. *Ac. leucorrhizus* var. *scaberulus;* 14297. *Ar. chinensis;* 14381. *Ac. gracilistylus;* 14466. *Pa. pseudo-ginseng;* 14755. *Hed. nepalensis* var. *sinensis;* see also Steward, A. N., C. Y. Chiao, & C. C. Cheo.

CHIAO, C. Y. & C. C. CHEO. 807. *De. Chevalieri* var. *dentigerus.*

CHIAO, C. Y. & S. C. FAN. 273. *Ac. leucorrhizus* var. *scaberulus;* 310. *Hed. nepalensis* var. *sinensis;* 410. *N. Davidii;* 538. *B. fatsioides;* 717. *Ac. leucorrhizus* var. *scaberulus;* 802. *Ac. leucorrhizus* var. *scaberulus.*

CHIEN, S. S. 5760. *Ac. trifoliatus.*

CHING, R. C. 377. *Ac. Giraldii* var. *pilosulus;* 887. *Ac. Giraldii* var. *pilosulus;* 899. *Pa. pseudo-ginseng;* 1088. *S. octophylla;* 1300. *Ac. gracilistylus;* 1302. *Hed. nepalensis* var. *sinensis;* 1393. *Ac. gracilistylus;* 1791. *Ac. gracilistylus;* 1871. *Ar. echinocaulis;* 2100. *De. Chevalieri;* 2294. *De. Chevalieri;* 2315. *Ac. evodiaefolius;* 2364. *Ar. chinensis;* 2590. *Ac. trifoliatus;* 2621. *Hed. nepalensis* var. *sinensis;* 2650. *Ac. gracilistylus;* 2705. *Ac. gracilistylus;* 2814. *Ac. evodiaefolius;* 2840. *Ac. gracilistylus;* 2864. *Ac. gracilistylus;* 2937. *De. Chevalieri;* 2957. *Ar. cordata;* 3218. *Ac. evodiaefolius;* 3229. *De. Chevalieri;* 3537. *Ac. trifoliatus;* 4868. *Ar. chinensis;* 4914. *Ac. gracilistylus;* 4996. *Ac. evodiaefolius;* 5045. *Ar. echinocaulis;* 5918. *De. hainanensis;* 5969. *Di. stachyanthus;* 6644. *Ac. trifoliatus;* 6793. *B. glomerulata* var. *longipedicellata;* 6850. *B. gracilis;* 7064. *Ar. armata;* 7115. *Ac. trifoliatus;* 7119. *Ar. echinocaulis;* 7123. *S. minutistellata;* 7151. *Ar. cordata;* 7203. *Hed. nepalensis* var. *sinensis;* 7213. *De. hainanensis;* 7327. *S. venulosa;* 7439. *Ac. trifoliatus;* 7463. *S. glomerulata;* 7680. *Ar. armata;* 7943. *De. parviflorus;* 8019. *De. angustilobus;* 8055. *Het. chinensis;* 8234. *S. octophylla;* 8306. *De. Chevalieri;* 8350. *S. Metcalfiana;* 8459. *Ar. Decaisneana;* 20481. *Ac. gracilistylus;* 20524. *Ac. evodiaefolius;* 20826. *Pa. pseudo-ginseng;* 21205. *Pa. pseudo-ginseng;* 21439. *S. dumicola;* 21449. *Ac. leucorrhizus;* 21455. *Ar. chinensis* var. *nuda;* 21488. *N. Delavayi;* 21510. *Ac. evodiaefolius;* 21563. *N. Delavayi;* 21574. *Pe. Henryi;* 21598. *N. Delavayi;* 21648. *Pe. Henryi;* 21891. *Hed. nepalensis* var. *sinensis;* 21895. *N. Delavayi;* 22091. *Ac. evodiaefolius;* 22204. *Pe. Henryi;* 30021. *Hed. nepalensis* var. *sinensis;* 30376. *Pe. Leschenaultii;* 30648. *Pe. Leschenaultii;* 30694. *Pa. pseudo-ginseng.*

CHING, R. C. & C. L. TSO. 491. *Ac. Giraldii.*

CHOW, H. C. 708. *Ar. chinensis;* 1088. *Ar. chinensis;* 1101. *N. Davidii;* 1341. *N. Davidii;* 1509. *N. Davidii;* 1549. *Ac. trifoliatus;* 1551. *N. Davidii;* 1698. *Ac. trifoliatus;* 1713. *K. pictus;* 1721. *Hed. nepalensis* var. *sinensis;* 1802. *Ac. Giraldii* var. *inermis;* 1956. *S. Delavayi;* 1960. *Hed. nepalensis* var. *sinensis.*

CHUN, N. K. 40221. *Ar. Decaisneana;* 41948. *Te. papyrifera;* 42295. *Te. papyrifera;* see also HOW, F. C. & N. K. Chun.

CHUN, N. K. & C. L. Tso. 4007. *Ar. Decaisneana;* 4427. *S. hainanensis;* 43568. *Ar. armata;* 43935. *B. glomerulata;* 44020. *S. octophylla;* 44103. *De. hainanensis;* 44156. *De. hainanensis;* 44635. *Het. fragrans.*

CHUN, W. Y. 775. *Ac. trifoliatus;* 2113. *Ac. Giraldii;* 3622. *Ar. chinensis;* 3794. *N. Davidii;* 3847. *N. Davidii;* 3875. *N. Davidii;* 3893. *Ac. setchuenensis;* 3915. *Ac. leucorrhizus;* 3921. *Ac. gracilistylus;* 4020. *Ac. leucorrhizus;* 4038. *Ac. Henryi;* 4044. *K. pictus* var. *magnificus;* 4060. *Ac. evodiaefolius;* 4140. *N. Davidii;* 4192. *N. Davidii;* 4256. *K. pictus;* 4365. *Ac. setchuenensis;* 4389. *K. pictus;* 4429. *N. Davidii;* 5204. *S. octophylla;* 5548. *Ar. Decaisneana;* 5672. *S. Delavayi* var. *ochrascens;* 5714. *Ac. trifoliatus;* 5782. *S. Delavayi* var. *ochrascens;* 5789. *De. confertus;* 5903. *S. octophylla;* 6100. *S. octophylla;* 6952. *N. fruticosus;* 7639. *Ac. trifoliatus.*

CHUNG, H. H. 1004. *S. octophylla;* 1135. *S. octophylla;* 1289. *S. octophylla;* 2002. *Ac. trifoliatus;* 2135. *Ar. chinensis;* 2417. *Ac. trifoliatus;* 2855. *De. Chevalieri* var. *dentigerus;* 3428. *De. Chevalieri;* 4528. *Ar. Decaisneana;* 4555. *Ac. trifoliatus;* 4824. *Ar. Decaisneana;* 5275. *S. octophylla;* 5900. *Ar. Decaisneana;* 6157. *S. fukienensis;* 6608. *De. Chevalieri* var. *dentigerus;* 7625. *Ac. trifoliatus;* 7831. *Ar. spinifolia;* 8285. *Ar. chinensis.*

CHUNG, H. H. & S. C. SUN. 528. *Ac. evodiaefolius.*

CHUNG, Z. S. (*T. S. Tsong*). 81684. *Pa. pseudo-ginseng;* 83301. *Ac. evodiaefolius* var. *gracilis;* 83451. *Ac. evodiaefolius* var. *gracilis;* 83453. *Ac. Chevalieri;* 83497. *Ar. cordata;* 83505. *De. Chevalieri;* 83518. *De. Chevalieri;* 83534. *De. Chevalieri;* 83536. *Ar. echinocaulis;* 83561. *Ac. evodiaefolius;* 83673. *Ac. trifoliatus* var. *setosus.*

COWDRY, N. H. 560. *K. pictus.*

DAVID, O. s. n. *Ac. setulosus.*

DELAVAY, J. M. s. n. *Pe. yunnanensis;* 2924. *Ar. chinensis* var. *nuda;* 3869. *Pe. Henryi;* 4027. *Ar. Fargesii* var. *yunnanensis.*

Dorsett, P. H. 5984. *Ac. senticosus.*

Dorsett, P. H. & J. H. Dorsett. 3107. *Ac. sessiliflorus;* 4072½. *Ac. senticosus;* 4205. *Ar. elata.*

Ducloux, F. D. 125. *Pe. Henryi;* 169. *Ar. Fargesii.*

Faber, E. 39 = 265. *Ac. trifoliatus;* 44. *K. pictus;* 141. *Pa. pseudo-ginseng* var. *angustifolius;* 158. *N. Davidii;* 1757. *Ac. sessiliflorus.*

Fan, S. C. 53. *N. Davidii.*

Fan, S. C. & Y. Y. Li. 171. *Ac. Sieboldianus;* 203. *Ac. gracilistylus;* 213. *Ac. gracilistylus;* 286. *S. Delavayi;* 307. *Ar. chinensis* var. *nuda;* 341. *De. Chevalieri* var. *dentigerus;* 591. *Ac. trifoliatus;* 604. *K. pictus;* 662. *Hed. nepalensis* var. *sinensis;* 681. *S. Delavayi.*

Fang, W. P. 487. *Ac. trifoliatus;* 2034. *N. Davidii;* 2125. *N. Davidii;* 2247. *Ac. setchuenensis;* 2795. *Ac. leucorrhizus;* 2861. *Ac. leucorrhizus;* 2876. *Ar. chinensis* var. *nuda;* 3106. *N. Davidii;* 3140. *Hed. nepalensis* var. *sinensis;* 3215. *N. Davidii;* 3241. *S. Delavayi;* 3392. *Ac. trifoliatus;* 3436. *Hed. nepalensis* var. *sinensis;* 3523. *Ac. lasiogyne;* 3698. *Ar. chinensis;* 3847. *Ac. trifoliatus;* 4145. *Ac. Giraldii;* 4385. *Pa. pseudo-ginseng* var. *bipinnatifidus;* 4369. *Ar. chinensis* var. *nuda;* 5551. *K. pictus;* 5567. *Te. papyrifera;* 5630. *Hed. nepalensis* var. *sinensis;* 5693. *N. Davidii;* 5717. *Hed. nepalensis* var. *sinensis;* 5740. *S. Bodinieri;* 5785. *Hed. nepalensis* var. *sinensis;* 6691. *Hed. nepalensis* var. *sinensis;* 6692. *Ac. leucorrhizus;* 6713. *Ac. leucorrhizus;* 6723A. *Ac. leucorrhizus;* 7558. *N. Davidii;* 7655. *Ac. leucorrhizus;* 7762. *Ac. leucorrhizus;* 9772. *Ac. trifoliatus;* 12622. *N. Davidii;* 12870. *Ac. leucorrhizus* var. *scaberulus;* 12932. *Ac. leucorrhizus* var. *scaberulus;* 23645. *S. Delavayi.*

Farges, R. P. s. n. *Ar. Fargesii; K. pictus.*

Feng, K. M. 275. *Hed. nepalensis* var. *sinensis;* 565. *Hed. nepalensis* var. *sinensis;* 624. *N. Delavayi;* 1098. *Ac. evodiaefolius;* 1326. *Ar. caesia;* 1330. *Ac. Wilsonii;* 1351. *Ar. apioides;* 1860. *Ac. Wilsonii;* 1939. *N. Delavayi;* 2069. *N. Delavayi;* 2361. *Pa. pseudo-ginseng;* 2423. *N. Delavayi;* 2487. *N. Delavayi;* 2791. *Ar. Fargesii;* 2792. *Pa. pseudo-ginseng* var. *major;* 2881. *Ar. chinensis* var. *nuda;* 2911. *N. Davidii;* 2919. *Pe. Henryi;* 3086. *N. Davidii;* 3089. *K. pictus;* 3111. *S. dumicola;* 3186. *N. Delavayi;* 3215. *Pe. Henryi;* 3279. *S. Hoi;* 3335. *N. Delavayi;* 3342. *Pe. Henryi.*

Fenzel, G. s. n. *Ac. Giraldii;* 715. *Ac. evodiaefolius;* 976. *Hed. nepalensis* var. *sinensis.*

Ford, C. s. n. *De. parviflorus; S. octophylla.*

Forrest, G. s. n. *S. dumicola;* 499. *Hed. nepalensis* var. *sinensis;* 5616. *Ac. evodiaefolius;* 7698. *S. venulosa;* 7704. *Me. Listeri;* 7887. *B. palmipes;* 8086. *Me. Listeri;* 8192. *B. Hainla;* 8267. *Ma. oreophilus;* 8796. *Ma. oreophilus;* 8887. *Ac. evodiaefolius;* 9245. *Hed. nepalensis* var. *sinensis;* 9308. *S. Delavayi;* 9595. *Hed. nepalensis* var. *sinensis;* 9590. *N. Delavayi;* 9670. *B. Hainla;* 9737. *B. Hainla;* 9739. *S. venulosa;* 9790. *S. hypoleucoides;* 10211. *Ac. cissifolius;* 10235. *Ac. evodiaefolius;* 10259. *Ac. Wilsonii;* 10411. *Ac. gracilistylus;* 10676. *N. Delavayi;* 10691. *N. Delavayi;* 10765. *Pe. Leschenaultii;* 10814. *Ar. chinensis* var. *nuda;* 10826. *N. Delavayi;* 10934. *Ar. chinensis* var. *nuda;* 11109. *Pe. Henryi;* 11120. *Pe. Henryi;* 11128. *Pe. Henryi;* 11256. *K. pictus;* 11282. *Ac. evodiaefolius* var. *gracilis;* 11357. *Hed. nepalensis* var. *sinensis;* 11505. *K. pictus;* 11558. *S. venulosa;* 11708. *N. Delavayi;* 11713. *Ac. trifoliatus;* 11748. *Ac. trifoliatus;* 11751. *N. Delavayi;* 11814. *S. shweliensis;* 11822. *Ma. oreophilus;* 11873. *S. venulosa;* 12068. *Ac. evodiaefolius* var. *ferrugineus;* 12848. *B. Hainla;* 13646. *Pe. Leschenaultii;* 13779. *Ac. gracilistylus;* 13854. *Ac. Leschenaultii;* 14881. *S. yunnanensis;* 15922. *Ac. evodiaefolius* var. *ferrugineus;* 16046. *Ac. trifoliatus;* 16215. *N. Delavayi;* 16906. *K. pictus;* 16935. *Pe. Henryi;* 17554. *Ac. trifoliatus;* 17690. *Ma. oreophilus;* 17896. *S. venulosa;* 18077. *Me. Listeri;* 18289. *Ma. oreophilus;* 18503. *Ar. Thomsonii;* 19051. *K. pictus;* 19243. *N. Davidii;* 19419. *Ac. gracilistylus;* 19789. *Ar. chinensis* var. *nuda;* 21362. *Pa. pseudo-ginseng* var. *bipinnatifidus;* 21477. *Ar. chinensis* var. *nuda;* 21574. *Ac. Leschenaultii;* 21624. *S. yunnanensis;* 22163. *Pe. Leschenaultii;* 22328. *S. yunnanensis;* 22859. *Pa. pseudo-ginseng;* 23032. *Pe. Henryi;* 23124. *N. Delavayi;* 24635. *Me. Listeri;* 26172. *B. Hainla;* 26207. *B. Hainla;* 26718. *Pe. subcordatus;* 27186. *S. macrophylla.*

Fung, Hom. See Lingnan University.

Giraldi, J. s. n. *Ac. Henryi; Ac. setchuenensis; Ar. chinensis; Hed. nepalensis* var. *sinensis;* 36. *Ac. brachypus.*

Gressitt, J. L. 1072. *Ar. armata;* 1182. *S. arboricola;* 1498. *Ac. gracilistylus.*

Groff, G. W. See Lingnan University.

Hance, F. 12963. *Ar. Decaisneana.*

Handel-Mazzetti, H. 112 = 10346. *K. pictus;* 132. *De. Chevalieri;* 173. *Hed. nepalensis* var. *sinensis;* 297. *Ac. trifoliatus;* 459. *Te. papyrifera;* 589 p.p. = 11753. *Hed. nepalensis* var. *sinensis;* 589 p.p. *De. parviflorus;* 594 = 11742. *Ac. gracilistylus;* 672 = 12309. *De. Chevalieri*

var. *dentigerus;* 691 = 12254. *Ar. echinocaulis;* 796. *Ac. trifoliatus;* 805 = 12682. *Ar. chinensis;* 806. *Ar. chinensis* var. *dasyphylloides;* 811 = 2629. *K. pictus;* 835 = 12488. *Ac. Simonii;* 839 = 12407. *De. Chevalieri* var. *dentigerus;* 2066. *Ar. Wilsonii;* 2542. *S. Delavayi;* 4381. *Ar. chinensis* var. *nuda;* 4410. *Ar. caesia;* 4456. *N. Delavayi;* 5639. *Ac. trifoliatus;* 6047. *S. venulosa;* 6424. *Pe. yunnanensis;* 6445. *Ac. Wilsonii;* 6840. *K. pictus;* 7540. *Hed. nepalensis* var. *sinensis;* 7865. *Ac. leucorrhizus* var. *fulvescens;* 7875. *Pe. Henryi;* 7973. *Ac. Wardii;* 8303. *Me. Listeri;* 8321. *Pe. Leschenaultii* var. *Forrestii;* 8409. *N. Davidii;* 8888. *Ac. cissifolius;* 9833. *S. yunnanensis;* 10009. *Ar. chinensis* var. *nuda;* 10015. *K. pictus.*

Henry, A. s. n. *Het. fragrans;* 1258. *Hed. nepalensis* var. *sinensis;* 1735. *S. octophylla;* 2104. *Ar. chinensis;* 2246. *K. pictus;* 2246A. *K. pictus;* 2253. *Ac. trifoliatus;* 2253A. *Ac. trifoliatus;* 2534. *N. Davidii;* 2535. *Ar. chinensis;* 2573. *Ac. leucorrhizus;* 2580. *Ac. leucorrhizus;* 2639. *Ac. trifoliatus;* 2762. *Ac. trifoliatus;* 2967. *N. Davidii;* 2984. *Hed. nepalensis* var. *sinensis;* 3101. *K. pictus;* 3261. *Hed. nepalensis* var. *sinensis;* 3341. *Hed. nepalensis* var. *sinensis;* 3406. *Ac. gracilistylus;* 3406A. *Ac. gracilistylus;* 4337. *N. Davidii;* 4337A. *N. Davidii;* 4573. *K. pictus;* 4832. *Ac. Henryi;* 5396. *Pa. pseudo-ginseng;* 5396A. *Pa. pseudo-ginseng;* 5396B. *Pa. pseudo-ginseng;* 5396C. *Pa. pseudo-ginseng* var. *major;* 5396F. *Pa. pseudo-ginseng;* 5396G. *Pa. pseudo-ginseng* var. *major;* 5396H. *Pa. pseudo-ginseng;* 5890. *Ac. gracilistylus* var. *villosulus;* 5930. *Ac. Rehderianus;* 5950B. *Ac. setchuenensis;* 5950C. *Ac. leucorrhizus* var. *scaberulus;* 5950E. *Ac. leucorrhizus* var. *scaberulus;* 6503. *Ac. Simonii;* 6503A. *Ac. Simonii;* 6503B. *Ac. leucorrhizus* var. *scaberulus;* 6521. *Ac. setchuenensis;* 6608A. *N. Davidii;* 6608B. *N. Davidii;* 6630. *Ac. setchuenensis;* 6655. *Ar. Henryi;* 6785. *Ar. Fargesii;* 6834. *Pa. pseudo-ginseng* var. *bipinnatifidus;* 6835. *Pa. pseudo-ginseng;* 6891. *Ac. Giraldii;* 7035. *Pe. Henryi;* 7121. *Pa. pseudo-ginseng* var. *major;* 7498. *N. Davidii;* 7609. *Ac. Henryi;* 7728. *Pa. pseudo-ginseng* var. *major;* 7909. *Ac. leucorrhizus;* 9180. *B. ciliata;* 9180A. *B. ciliata;* 9214. *S. Delavayi;* 9214B. *S. Delavayi;* 9284. *Pe. verticillatus;* 9403. *S. venulosa;* 9403B. *S. venulosa;* 9403C. *S. venulosa;* 9479 p.p. *Ar. Decaisneana;* 9479 p.p. *Ar. chinensis* var. *nuda;* 9479A. *Ar. Decaisneana;* 9479B. *Ar. Decaisneana;* 9479C. *Ar. chinensis* var. *nuda;* 9530. *S. producta;* 9564. *S. hypoleuca;* 9654A. *B. glomerulata;* 9723. *S. Hoi;* 9806. *Pe. Leschenaultii;* 9856. *Hed. nepalensis* var. *sinensis;* 9856A. *Hed. nepalensis* var. *sinensis;* 9927. *N. Delavayi;* 9927B. *N. Delavayi;* 9927C. *Pe. Delavayi;* 9927D. *Pe. Delavayi;* 10158. *Ac. trifoliatus* var. *setosus;* 10158A. *Ac. trifoliatus* var. *setosus;* 10541. *S. venulosa;* 10639. *Ac. gracilistylus;* 10622. *Ar. caesia;* 11158. *Ac. trifoliatus* var. *setosus;* 11244. *Ar. caesia;* 11271. *Ar. foliolosa;* 11278. *Pe. Henryi;* 11278A. *Pe. Henryi;* 11382 p.p. *S. producta;* 11382 p.p. *S. hypoleuca;* 11407. *Pa. pseudo-ginseng;* 11407B. *Pa. pseudo-ginseng;* 11435. *S. hypoleucoides;* 11492. *B. glomerulata;* 11650. *B. ficifolia;* 11757. *Tr. palmata;* 11764. *Ma. undulatus* var. *simplex;* 11840. *S. hypoleuca;* 11882. *B. Hainla;* 12259A. *Pa. pseudo-ginseng;* 12259B. *Pa. pseudo-ginseng;* 12298. *Tu. calyptratus;* 12298A. *Tu. calyptratus;* 12298B. *Tu. calyptratus;* 12402. *Ma. undulatus* var. *simplex;* 12561. *Ac. trifoliatus;* 12644. *Ma. undulatus* var. *simplex;* 12653. *B. ficifolia;* 12653A. *B. ficifolia;* 12653B. *B. ficifolia;* 12770. *Ac. trifoliatus* var. *setosus;* 12801. *S. octophylla;* 12865. *Het. chinensis;* 12939. *S. chinensis;* 13044. *S. venulosa;* 13082. *Ma. oreophilus;* 13083. *Ma. oreophilus;* 13083A. *Ma. oreophilus;* 13294. *B. Hainla;* 13301. *S. hypoleucoides;* 13304. *Hed. nepalensis* var. *sinensis;* 13409. *S. macrophylla;* 13409A. *S. macrophylla;* 13426. *S. Searelliana;* 13456. *B. glomerulata;* 13462. *S. Hoi;* 13474. *S. elata;* 13621. *B. glomerulata.*

Hers, J. H. 948. *Ar. chinensis;* 1151. *Ar. chinensis* var. *nuda;* 1271. *Ar. chinensis;* 2274. *Ar. chinensis;* 2428. *Ar. chinensis.*

Ho, H. T. 60146. *Ar. Decaisneana.*

Hongkong Botanical Garden, Herbarium of. 924. *De. proteus;* 2760. *Hed. nepalensis* var. *sinensis;* 10198. *De. proteus.*

How, F. C. 72313. *B. glomerulata;* 72765. *S. arboricola;* 73107. *B. glomerulata;* 73229. *S. arboricola;* 73522. *B. glomerulata;* 73528. *De. oligodontus;* 73535. *S. arboricola;* 73623. *De. Chevalieri;* 73958. *Ar. Decaisneana.*

How, F. C. & N. K. Chun. 70103. *S. octophylla.*

Hsia, W. Y. See Tang, T. & W. Y. Hsia.

Hu, H. H. 185. *S. octophylla;* 235. *Ar. chinensis;* 253. *K. pictus* var. *magnificus;* 331. *De. Chevalieri;* 508. *Ac. trifoliatus;* 534. *Hed. nepalensis* var. *sinensis;* 1238. *De. Chevalieri;* 1249. *De. Chevalieri;* 1265. *De. Chevalieri* var. *dentigerus;* 1646. *Ac. evodiaefolius;* 2365. *Ac. evodiaefolius.*

Hwang, C. Y. 64. *N. Davidii.*

Ip, N. K. (University of Nanking numbers). 4781. *De. Chevalieri;* 4783. *Ac. Sieboldianus.*

James, H. E. M. s. n. *Ac. senticosus.*

KENG, Y. L. 54. *Ar. chinensis;* 353. *Ac. evodiaefolius;* 451. *Ar. echinocaulis;* 930. *De. Chevalieri* var. *dentigerus;* 1204. *De. Chevalieri* var. *dentigerus;* 1063. *Ac. evodiaefolius;* 1064. *Ac. gracilistylus;* 1067. *K. pictus;* 1118. *Ac. gracilistylus;* 1956. *K. pictus;* 2635. *Ar. chinensis;* 2691. *Ac. gracilistylus.*

KING, T. F. 520. *Ac. Henryi.*

KO, S. P. 50164. *De. Chevalieri;* 51164. *S. minutistellata;* 51780. *Ac. phanerophlebius;* 52789. *Ac. gracilistylus* var. *nodiflorus;* 55386. *Ma. undulatus;* 55841. *S. octophylla.*

KOMAROV, V. 149. *Ac. senticosus;* 1148. *Ac. sessiliflorus;* 1151. *Ar. elata;* 1152. *Ar. cordata.*

KORSHINSKY, S. s. n. *Ac. senticosus.*

KUNG, H. W. 1896. *Ac. senticosus;* 2087. *Ac. sessiliflorus.*

KUNTZE, OTTO. 3575. *S. octophylla.*

LABORDE, J. See Bodinier, E.

LAU, S. K. 350. *S. arboricola;* 638. *Ac. trifoliatus;* 672. *S. octophylla;* 756. *Ar. Decaisneana;* 957. *De. parviflorus;* 1241. *Het. fragrans;* 1888. *B. glomerulata;* 2011. *S. octophylla;* 2012. *De. parviflorus;* 2050. *Ac. trifoliatus;* 2232. *Ar. dasyphylla;* 2262. *S. octophylla;* 2325. *De. parviflorus;* 2415. *De. Chevalieri* var. *dentigerus;* 2426. *Het. brevipedicellatus;* 2436. *Ar. spinifolia;* 2642. *Hed. nepalensis* var. *sinensis;* 2741. *De. Chevalieri;* 2980. *Het. fragrans;* 3216. *S. octophylla;* 3419. *Het. fragrans;* 3869. *B. glomerulata;* 3949. *De. Chevalieri* var. *dentigerus;* 4218. *Ac. trifoliatus;* 4224. *Ar. chinensis* var. *dasyphylloides;* 4363. *Ar. chinensis* var. *dasyphylloides;* 4380. *Ar. spinifolia;* 4404. *Het. brevipedicellatus;* 4428. *De. Chevalieri* var. *dentigerus;* 4567. *Ar. spinifolia;* 4593. *Ac. trifoliatus;* 4756. *Ar. Decaisneana;* 4847. *S. Delavayi* var. *ochrascens;* 4876. *Het. fragrans* var. *subcordatus;* 4994. *Ar. Decaisneana;* 4998. *B. glomerulata;* 25479. *B. glomerulata;* 27343. *De. hainanensis;* 28169. *De. oligodontus;* 28337. *De. oligodontus;* 28381. *S. octophylla;* 28693. *B. glomerulata* var. *longipedicellata;* 28812. *De. inflatus.*

LEI, C. I. 187. *S. arboricola;* 221. *S. octophylla;* 284. *Het. fragrans* var. *attenuatus;* 357. *S. octophylla;* 930. *Ar. armata.*

LEVINE, C. O. See Lingnan University.

LEVINE, C. O. & G. W. GROFF. See Lingnan University.

LEVINE, C. O. & F. A. MCCLURE. See Lingnan University.

LI, C. F. 10046. *K. pictus;* 10058. *Ar. chinensis;* 10098. *Ac. sessiliflorus;* 11234. *Ac. senticosus.*

LI, M. K. 2189. *S. shweliensis.*

LI, Y. Y. See Fan, S. C. & Y. Y. Li.

LIANG, H. Y. 60149. *De. hainanensis;* 60946. *Ac. gracilistylus;* 62558. *B. glomerulata;* 62613. *B. glomerulata;* 63075. *S. arboricola;* 63389. *Ar. Decaisneana;* 63429. *Het. fragrans;* 63435. *S. arboricola;* 63484. *S. octophylla;* 63650. *Het. fragrans;* 63681. *S. octophylla;* 63839. *Het. fragrans;* 64812. *Ma. oreophilus;* 64336. *S. octophylla;* 64627. *Ar. Decaisneana;* 66310. *Het. fragrans;* 66429. *Het. fragrans;* 69974. *Ac. trifoliatus* var. *setosus.*

LICENT, L. 12209. *Ac. senticosus* f. *inermis;* 12668. *Ac. Giraldii* var. *inermis.*

LING, K. (University of Nanking numbers). 12295. *Ac. Giraldii;* 12553. *Ac. Giraldii.*

LINGNAN UNIVERSITY (formerly Canton Christian College; numbers below 9576 are marked CCC, numbers above 12523 are marked LU).[1] 117 (*Levine & Groff*). *S. octophylla;* 182 (*Levine*). *Ac. trifoliatus;* 262 (*Levine*). *S. octophylla;* 369 (*Levine*). *S. octophylla;* 418 (*Levine*). *Ar. Decaisneana;* 558 (*Levine*). *Ac. trifoliatus;* 1235 (*Levine*). *De. acuminatissimus;* 1315 (*Levine*). *De. acuminatissimus;* 1376 (*Levine*). *De. Chevalieri;* 1433 (*Levine*). *De. Chevalieri;* 1525 (*Levine*). *De. Chevalieri;* 1684 (*Levine*). *S. octophylla;* 1702 (*Levine*). *Ar. Decaisneana;* 1851 (*Levine*). *Ar. chinensis* var. *nuda;* 1853 (*Levine*). *Ar. Decaisneana;* 2739 (*To Kang-peng*). *Het. fragrans;* 3242 (*Levine*). *Ar. spinifolia;* 3400 (*Levine*). *S. octophylla;* 6841 (*Levine & McClure*). *De. Chevalieri;* 7544 (*McClure*). *Ac. trifoliatus;* 7894 (*McClure*). *S. octophylla;* 8044 (*McClure 1350*). *Ar. Decaisneana;* 8474 (*McClure*). *Ar. armata;* 8732 (*W. T. Tsang*). *Hed. nepalensis* var. *sinensis;* 9434 (*McClure 8878*) *B. glomerulata;* 9576A (*McClure*). *S. arboricola;* 9576B (*McClure*). *S. arboricola;* 12523 (*To & Tsang*). *De. Chevalieri;* 13085 (*McClure*). *Ac. trifoliatus;* 13773 (*McClure*). *S. Delavayi* var. *ochrascens;* 14181 (*W. T. Tsang & K. C. Wang*). *Ar. dasyphylla;* 14841 (*W. T. Tsang & K. C. Wang*). *Te. papyrifera;* 14996 (*W. T. Tsang & K. C. Wang*). *K. pictus;* 15346 (*McClure 3996*). *K. pictus;* 16179 (*W. T. Tsang 680*). *Ar. armata;* 16267 (*W. T. Tsang 768*). *S. octophylla;* 16294 (*W. T. Tsang 795*). *S. arboricola;* 16307 (*W. T. Tsang 808*). *S. octophylla;*

[1] For an explanation of the numbers of the Lingnan University specimens and those of several other Chinese herbaria, see Metcalf, Fl. Fukien 1: 5. 1942.

16324 (*W. T. Tsang 825*). *Ar. armata;* 16532 (*W. T. Tsang*). *S. octophylla;* 16588 (*W. T. Tsang*). *S. octophylla;* 17677 (*Tsang, Tang, & Fung 146*). *Ma. oreophilus;* 17837 (*Tsang, Tang, & Fung 303*). *Ma. oreophilus;* 18174 (*Tsang & Fung 640*). *B. glomerulata;* 18219 (*Tsang & Fung 685*). *Ar. armata;* 18592 (*McClure Y124*). *S. kwangsiensis?;* 18627 (*Fung Hom*). *Het. fragrans;* 19098 (*McClure*). *Ar. spinifolia;* 19126 (*Tang Sui Pan 6*). *Ar. Decaisneana;* 19147 (*Tang Sui Pan & Fung Hom 27*). *S. octophylla;* 19235 (*McClure B64*). *Hed. helix;* 19422 (*Fung Hom*). *De. Chevalieri;* 19474 (*Fung Hom*). *De. proteus;* see also Chekiang University.

Liou, T. N. 183. *Ac. evodiaefolius;* 263. *Ac. Henryi* var. *Faberi.*

Litvinov, D. s. n. *Ac. sessiliflorus.*

Liu, J. C. 1481. *Ac. senticosus.*

Liu, J. C. & B. E. Read. L2012 = R563. *Ac. sessiliflorus.*

Liu, Y. S. 1107. *N. Davidii;* 1164. *Ac. leucorrhizus* var. *fulvescens;* 1190. *Ac. leucorrhizus;* 1272. *Ac. leucorrhizus* var. *fulvescens;* 1431. *Hed. nepalensis* var. *sinensis;* 1483A. *Ar. chinensis;* 1616. *Ac. leucorrhizus* var. *fulvescens;* 1726. *B. ciliata;* 1864. *S. Delavayi;* 1916. *K. pictus;* 2033. *Ac. trifoliatus;* 2194. *Ac. evodiaefolius;* 2246. *Ac. leucorrhizus;* 2248. *Ac. leucorrhizus;* 2262. *Te. papyrifera.*

Maack, R. s. n. *Ac. sessiliflorus; Ar. elata.*

MacGregor, D. s. n. *Ac. gracilistylus; Hed. nepalensis* var. *sinensis;* 30. *Hed. nepalensis* var. *sinensis.*

Maire, E. E. s. n. *Te. papyrifera;* 450. *Ac. Giraldii;* 2918. *Ac. trifoliatus;* 2988. *Ac. trifoliatus;* 6300. *Pe. yunnanensis;* 6815. *Ar. chinensis* var. *nuda;* 7369. *Ar. chinensis* var. *nuda;* 7463. *Ac. Giraldii.*

Maire, R. P. 6816. *Ar. chinensis* var. *nuda.*

Martin, L. See Bodinier, E.

Maximowicz, C. J. s. n. *Ac. sessiliflorus; Ar. cordata; Ar. elata; K. pictus.*

McClure, F. A. 20125. *Ma. oreophilus;* see also Lingnan University.

Merrill, E. D. 10057. *Ac. trifoliatus;* 10187. *De. acuminatus;* 10327. *De. proteus;* 11035. *De. Chevalieri.*

Metcalf, F. P. 17627. *Hed. nepalensis* var. *sinensis.*

Meyer, F. N. 1365. *Ac. senticosus;* 1369. *Ac. senticosus;* 1473. *Ac. gracilistylus;* 1530. *De. Chevalieri* var. *dentigerus;* 1556. *K. pictus* var. *magnificus;* 1569. *Ar. echinocaulis;* 1769. *Ac. leucorrhizus;* 2007. *Hed. nepalensis* var. *sinensis.*

Nanking, University of. See Cheo, C. C., Chiao, C. Y., Ip, N. K., Ling, K., & Steward, A. N.

Norton, J. B. 1362. *Ar. chinensis;* 1363. *De. Chevalieri;* 1435. *Hed. nepalensis* var. *sinensis.*

Peng, T. C. 184. *Ar. chinensis.*

Pratt, A. E. 789. *Hed. nepalensis* var. *sinensis.*

Purdom, W. s. n. *Ac. Giraldii* var. *pilosulus;* 1. *Ar. chinensis* var. *nuda;* 2. *Ac. setchuenensis;* 3. *Ac. Giraldii;* 4. *Ac. stenophyllus;* 7. *Ac. Giraldii;* 350. *Ac. gracilistylus;* 445. *Ac. Giraldii;* 1011. *Hed. nepalensis* var. *sinensis.*

Read, B. E. See Liu, J. C. and B. E. Read.

Rock, J. F. 2356. *Het. fragrans;* 2395. *Tr. palmata;* 2402. *Tr. palmata;* 2417. *Ar. Thomsonii;* 2472. *Ma. undulatus* var. *simplex;* 2556. *Het. fragrans* var. *attenuatus;* 2655. *Ar. armata;* 2757. *Tu. calyptratus;* 2863. *S. venulosa;* 2866. *S. venulosa;* 2928. *B. Hainla;* 2949. *Tr. palmata;* 3523. *Hed. nepalensis* var. *sinensis;* 3730. *Pe. Leschenaultii;* 3771. *Ac. Wilsonii;* 3953. *Ar. Wilsonii;* 4133. *Ac. evodiaefolius;* 4204. *Ac. evodiaefolius;* 4482. *Pe. Leschenaultii;* 4866. *Ac. Wilsonii;* 5083. *Ar. Wilsonii;* 5106. *Ac. evodiaefolius;* 5192. *Ac. evodiaefolius;* 5752. *Pa. pseudo-ginseng;* 5756. *Hed. nepalensis* var. *sinensis;* 6203. *N. Delavayi;* 6564. *Pe. Henryi;* 6951. *N. Delavayi;* 6969. *Ac. trifoliatus;* 7016. *Me. Listeri;* 7018. *S. shweliensis;* 7096. *S. Delavayi;* 7232. *S. venulosa;* 7278. *S. minutistellata;* 7364. *Ma. undulatus;* 7411. *S. impressa;* 7433. *Ma. undulatus;* 7570. *Ac. trifoliatus;* 7586. *S. Delavayi;* 7626. *Hed. nepalensis* var. *sinensis;* 7632. *S. impressa;* 7639. *S. shweliensis;* 7851. *S. venulosa;* 8302. *Pe. Leschenaultii;* 8544. *Ar. Wilsonii;* 8984. *Ac. Wilsonii;* 9407. *Ac. gracilistylus;* 9512. *Ac. evodiaefolius;* 10244. *Me. Listeri;* 10363. *Ac. evodiaefolius;* 10365. *Ac. Wardii;* 10408. *Ar. chinensis* var. *nuda;* 10571. *N. Delavayi;* 11521. *K. pictus;* 11553. *Ac. leucorrhizus;* 11614. *K. pictus;* 11632. *S. Hoi;* 11633. *N. Delavayi;* 11651. *Ac. evodiaefolius;* 12063. *Hed. nepalensis* var. *sinensis;* 12657. *Ac. Giraldii* var. *pilosulus;* 12695. *Ac. Giraldii;* 12845. *Ac. Giraldii;* 13106. *Ac. Giraldii* var. *pilosulus;* 13215. *Ar. chinensis* var. *nuda;* 13481. *Ar. chinensis* var. *nuda;* 13491. *Ac. Giraldii;* 13534. *Ac. Giraldii;* 13665. *Ac. leucorrhizus;* 14572. *Ar. chinensis* var. *nuda;* 14669. *Ac. leucorrhizus;* 14673. *Ar. chinensis* var. *nuda;* 14721. *Ac. leucorrhizus;* 14764.

Ac. Giraldii; 14811. *Ac. Giraldii;* 14825. *Ar. chinensis* var. *nuda;* 14850. *Ac. stenophyllus* var. *angustissimus;* 14866. *Ac. Giraldii;* 14893. *Ac. Giraldii;* 15023. *Ac. leucorrhizus;* 15085. *Ar. chinensis* var. *nuda;* 16900. *Ar. Wilsonii;* 17820. *Ar. Wilsonii;* 18051. *Ac. evodiaefolius;* 18270. *Hed. nepalensis* var. *sinensis;* 22283. *Ac. evodiaefolius* var. *ferrugineus;* 22652. *Ac. evodiaefolius;* 23869. *Ac. evodiaefolius;* 24394. *Ac. evodiaefolius;* 24712. *Ac. Wilsonii;* 25404. *Ac. evodiaefolius.*

Sargent, C. S. s. n. *Ac. senticosus; Het. fragrans; S. octophylla.*

Schoh, O. 67 = 408. *K. pictus;* 325. *N. Delavayi.*

Schneider, C. s. n. *Ac. Simonii;* 156. *Hed. nepalensis* var. *sinensis;* 320. *Hed. nepalensis* var. *sinensis;* 395. *N. Delavayi;* 409. *Hed. nepalensis* var. *sinensis;* 1220. *Ar. Wilsonii;* 1221. *Ar. Wilsonii;* 1417. *S. dumicola;* 1427. *Ac. evodiaefolius* var. *gracilis;* 2075. *Pe. Henryi;* 2236. *N. Delavayi;* 2387. *Ac. cissifolius;* 2441. *Pe. Leschenaultii;* 2471. *Ac. evodiaefolius;* 2793. *Ac. trifoliatus;* 3011. *Pa. pseudo-ginseng;* 3059. *Hed. nepalensis* var. *sinensis;* 3166. *Pe. Leschenaultii;* 3267. *Hed. nepalensis* var. *sinensis;* 3288. *Ac. evodiaefolius;* 3617. *Pa. pseudo-ginseng;* 3891. *Ar. Wilsonii;* 4054. *S. Delavayi.*

Schrank, L. s. n. *Ac. senticosus.*

Shangtung University. 1037. *Ar. chinensis.*

Shearer, G. s. n. *K. pictus.*

Sin, S. S. 9569. *Ar. echinocaulis;* 11020. *De. parviflorus;* 11346. *De. confertus;* 11458. *Ar. spinifolia;* 11517. *Ar. dasyphylla;* 11742. *De. confertus.*

Skvortzov, B. V. s. n. *Ac. sessiliflorus; Ar. elata.*

Smith, H. 303. *Ac. sessiliflorus;* 306. *Ac. senticosus;* 758. *Ac. sessiliflorus;* 912. *Ac. senticosus* f. *subinermis;* 2831. *Ac. Giraldii;* 3641. *Ac. Giraldii;* 4536. *Ac. Wardii;* 4753. *Ac. Wardii;* 4858. *Hed. nepalensis* var. *sinensis;* 6484. *Ac. senticosus* f. *inermis;* 6563. *Ac. stenophyllus* var. *dilatatus;* 7783. *Ac. senticosus.*

Steward, A. N. (University of Nanking numbers). 2039. *K. pictus;* 2116. *Ac. gracilistylus;* 2568. *K. pictus;* 2752. *K. pictus;* 2783. *K. pictus;* 4224. *Ac. leucorrhizus* var. *scaberulus;* 4695. *Pa. pseudo-ginseng;* 4753. *Ar. chinensis;* 7141. *De. Chevalieri;* 9773. *Ar. chinensis;* 14707. *K. pictus;* 14709. *K. pictus;* 14477. *K. pictus;* 18931. *K. pictus.*

Steward, A. N. & C. C. Cheo. 11. *S. Bodinieri;* 402. *B. ciliata;* 776. *S. Delavayi;* 976. *Ar. undulata;* 1039. *Ar. armata;* 1054. *De. stellatus;* 1086. *S. octophylla;* 1200. *Te. papyrifera.*

Steward, A. N., C. Y. Chiao, & C. C. Cheo. 126. *Ac. trifoliatus;* 258. *Ac. gracilistylus;* 262. *N. Delavayi;* 374. *De. hainanensis;* 478. *Ac. evodiaefolius;* 505. *Ac. setchuenensis;* 566. *Ac. trifoliatus;* 694. *Hed. nepalensis* var. *sinensis;* 725. *S. Bodinieri;* 740. *Te. papyrifera;* 758. *S. Bodinieri;* 829. *Ar. dasyphylla;* 917. *N. Davidii.*

Sun, S. C. 1303. *Ar. chinensis;* 1466. *Ac. evodiaefolius;* see also Chung, H. H. & S. C. Sun.

Sylvestri, C. s. n. *Ar. chinensis* var. *nuda;* 1598. *Ac. gracilistylus* var. *pubescens;* 1600. *Ac. gracilistylus* var. *pubescens;* 1601. *K. pictus;* 1613. *Hed. nepalensis* var. *sinensis.*

Taam, Y. W. 123. *De. acuminatissimus;* 283. *De. parviflorus.*

Tang, Siu Ging. 5560. *Ac. trifoliatus;* 5820. *Ac. trifoliatus;* 6765. *Hed. nepalensis* var. *sinensis;* 6831. *S. octophylla;* 6967. *S. octophylla;* 7068. *Ac. trifoliatus;* 13008. *S. octophylla;* 13105. *S. octophylla;* 13270. *S. octophylla.*

Tang, Sui Pan. See Lingnan University.

Tang, Sui Pan & Fung Hom. See Lingnan University.

Tang, T. 982. *Ac. senticosus;* 1481. *Ac. senticosus.*

Tang, T. & W. Y. Hsia. 156. *Ar. chinensis.*

Ten, P. S. 600. *Hed. nepalensis* var. *sinensis.*

Ten, Simeon. 32. *N. Delavayi;* 468. *Ac. evodiaefolius;* 508. *Ac. evodiaefolius;* 533. *Ar. chinensis* var. *nuda;* 537. *N. Delavayi.*

Teng, S. W. 90353. *Ac. gracilistylus;* 90684. *Ar. chinensis;* 90787. *Ac. trifoliatus;* 90830. *S. glomerulata;* 90890. *Ar. armata;* 90995. *B. glomerulata* var. *longipedicellata.*

To, Kang-Peng. See Lingnan University.

To, Kang-Peng & W. T. Tsang. See Lingnan University.

Tsai, H. T. 50263. *Ac. senticosus;* 50277. *Ar. cordata;* 50522. *Ar. chinensis* var. *nuda;* 51246. *Ac. evodiaefolius;* 51291. *Ac. leucorrhizus* var. *fulvescens;* 51423. *B. fatsioides;* 51443. *S. minutistellata;* 51489. *S. Delavayi;* 51505. *S. hypoleucoides;* 51538A. *S. hypoleucoides;* 51890. *B. ciliata;* 52450. *S. diversifoliolata;* 52466. *S. hypoleucoides;* 52642. *S. Searelliana;* 52740. *Ac. Simonii;* 52042. *N. Delavayi;* 52982. *Pe. Leschenaultii;* 53121. *S. venulosa;* 53252. *S. venulosa;* 53649. *Pa. pseudo-ginseng* var. *bipinnatifidus;* 54028. *N. Delavayi;* 54075. *S. dumicola;* 54085. *Hed. nepalensis* var. *sinensis;* 54121. *S. impressa;* 54231. *Pa. pseudo-ginseng;*

54353. *Me. Listeri;* 54378. *S. Hoi;* 54386. *Me. Listeri;* 54451. *S. Hoi;* 54453. *Ac. evodiaefolius;* 54478. *S. impressa;* 54518. *S. shweliensis;* 54526. *S. Delavayi;* 54588. *Ma. oreophilus;* 54759. *B. glomerulata* var. *coriacea;* 54950. *Me. Listeri;* 54951. *B. hispida;* 54969. *S. Delavayi;* 54978. *S. Hoi;* 55034. *S. venulosa;* 55347. *S. glomerulata;* 55495. *B. glomerulata* var. *coriacea;* 55510. *B. Hainla;* 55894. *S. khasiana;* 56119. *Hed. nepalensis* var. *sinensis;* 56134. *N. Delavayi;* 56278. *N. Delavayi;* 56305. *B. Hainla;* 56307. *B. fatsioides;* 56386. *B. chengkangensis;* 56505. *Ac. evodiaefolius;* 56550. *S. Hoi;* 56557. *Me. Listeri;* 56563. *Pa. pseudo-ginseng;* 56575. *B. palmipes;* 56580. *Ar. chinensis;* 56583A. *Me. Listeri;* 56628. *S. macrophylla;* 56823. *Ma. undulatus;* 56855. *Ma. undulatus* var. *simplex;* 56890. *B. Hainla;* 57212. *Ac. evodiaefolius;* 57283. *Ar. Wilsonii;* 57355. *Ar. chinensis* var. *nuda;* 57357. *Ar. Wilsonii;* 57366. *Ac. leucorrhizus* var. *fulvescens;* 57450. *Ar. chinensis* var. *nuda;* 57524. *N. Delavayi;* 57665. *Ar. chinensis* var. *nuda;* 57797. *Ac. leucorrhizus;* 57816. *Hed. nepalensis* var. *sinensis;* 57841. *Ac. evodiaefolius;* 57868. *Hed. nepalensis* var. *sinensis;* 57886. *Ar. chinensis* var. *nuda;* 57912. *Ac. leucorrhizus;* 57929. *Ac. leucorrhizus;* 57939. *Ac. leucorrhizus;* 58091. *Ac. evodiaefolius;* 58337. *Pa. pseudo-ginseng;* 58347. *S. multinervia;* 58363. *S. impressa;* 58512A. *Ac. trifoliatus;* 58678. *De. Chevalieri;* 58728. *De. Chevalieri;* 58861. *Ar. chinensis;* 58864. *Me. Listeri;* 58890. *Hed. nepalensis* var. *sinensis;* 58923. *Ac. trifoliatus;* 58926. *Ac. trifoliatus;* 59035. *S. Hoi;* 59086. *B. glomerulata* var. *coriacea;* 59089. *S. chinensis;* 59338. *Pe. Leschenaultii;* 59587. *Ac. evodiaefolius;* 59589. *S. Hoi;* 59594. *Hed. nepalensis* var. *sinensis;* 59693. *Ac. evodiaefolius;* 59743. *Pa. pseudo-ginseng;* 59759. *Ac. evodiaefolius;* 59765. *Ar. chinensis* var. *nuda;* 59841. *Ac. evodiaefolius;* 59847. *Hed. nepalensis* var. *sinensis;* 59919. *Hed. nepalensis* var. *sinensis;* 59960. *Ac. evodiaefolius;* 60006. *S. venulosa;* 60278. *S. glomerulata;* 60332. *B. glomerulata* var. *coriacea;* 60342. *S. glomerulata;* 61147. *B. glomerulata* var. *coriacea;* 61564. *De. Chevalieri;* 61624. *De. Chevalieri;* 61693. *S. Hoi;* 61854. *Ar. armata;* 61908. *Ac. trifoliatus* var. *setosus;* 62236. *B. glomerulata;* 62457. *N. Davidii;* 62493. *N. Davidii;* 62632. *N. Davidii;* 62779. *S. hainensis;* 62881. *N. Davidii.*

Tsang, W. T. 20057. *S. octophylla;* 20083. *Ac. gracilistylus;* 20199. *Ac. gracilistylus;* 20393. *Ac. gracilistylus;* 20416. *De. proteus;* 20625. *Hed. nepalensis* var. *sinensis;* 20691. *S. Delavayi* var. *ochrascens;* 20699. *S. Delavayi* var. *ochrascens;* 20740. *S. minutistellata;* 20811. *Ar. dasyphylla;* 20837. *Ac. trifoliatus;* 20965. *De. Chevalieri;* 21224. *De. parviflorus;* 21316. *De. proteus;* 21434. *De. Chevalieri;* 21777. *Ar. dasyphylla;* 21788. *S. kwangsiensis;* 21930. *Ac. gracilistylus* var. *nodiflorus;* 22088. *S. kwangsiensis;* 22177. *S. kwangsiensis;* 22361. *Di. stachyanthus;* 22406. *De. hainanensis;* 22575. *De. hainanensis;* 22601. *De. hainanensis;* 22632. *Ac. evodiaefolius* var. *gracilis;* 22650. *De. Chevalieri;* 22874. *De. acuminatissimus;* 23298. *Ar. Decaisneana;* 24160. *B. glomerulata;* 24235. *De. angustilobus;* 24257. *De. Chevalieri;* 24270. *De. kwangsiensis;* 24385. *Di. stachyanthus;* 24428. *S. Metcalfiana;* 24435. *Het. chinensis;* 24465. *S. Metcalfiana;* 24518. *S. Metcalfiana;* 24584. *Het. chinensis;* 24654. *Het. chinensis;* 24727. *Ar. Decaisneana;* 24745. *Ar. armata;* 24765. *De. kwangsiensis;* 25375. *Ac. gracilistylus;* 25860. *Ac. trifoliatus;* 25945. *De. productus;* 26148. *Hed. nepalensis* var. *sinensis;* 27936. *Ar. echinocaulis;* 28388. *Ar. chinensis* var. *dasyphylloides;* 28480. *De. Chevalieri;* 28503. *S. minutistellata;* see also Lingnan University.

Tsang, W. T. & Fung Hom. See Lingnan University.

Tsang, W. T., Tang, Sui Pan, & Fung Hom. See Lingnan University.

Tsang, W. T. & K. C. Wang. See Lingnan University.

Tsiang, Y. 166. *S. octophylla;* 1004. *Ac. gracilistylus;* 1130. *Ac. trifoliatus;* 1216. *Ar. chinensis* var. *dasyphylloides;* 1231. *Ac. trifoliatus;* 1331. *S. Delavayi* var. *ochrascens;* 1335. *S. Delavayi* var. *ochrascens;* 1347. *K. pictus;* 1449. *S. octophylla;* 1555. *S. octophylla;* 1606. *Ac. trifoliatus;* 1686. *Ac. trifoliatus;* 2056. *Het. fragrans;* 3344. *Ac. trifoliatus;* 4123. *Hed. nepalensis* var. *sinensis;* 4187. *N. Davidii;* 4206. *K. pictus;* 4286. *S. minutistellata;* 4770. *Ac. trifoliatus* var. *setosus;* 4905. *Hed. nepalensis* var. *sinensis;* 5475. *De. hainanensis;* 5489. *Ac. Simonii;* 5746. *Ac. Simonii;* 6123. *Ac. trifoliatus;* 6455. *S. Delavayi;* 6764. *De. Chevalieri* var. *dentigerus;* 6884. *Ar. Decaisneana;* 6916. *B. ciliata;* 6957. *S. minutistellata;* 7046. *B. acuminata;* 7144. *Ma. undulatus;* 7235. *Ar. armata;* 7452. *Hed. nepalensis* var. *sinensis;* 7503. *S. Bodinieri;* 8496. *Ac. trifoliatus;* 8650. *N. Davidii;* 8878. *Ac. Simonii;* 8894. *De. parviflorus;* 9272. *Hed. nepalensis* var. *sinensis;* 9519. *S. producta;* 10127. *De. Chevalieri* var. *dentigerus;* 10131. *Ar. echinocaulis;* 10348. *Ar. chinensis.*

Tsiang, Y. & H. Wang. 10629. *S. venulosa.*

Tsiu, T. M. 531. *Ac. gracilistylus* var. *nodiflorus;* 697. *Ac. trifoliatus* var. *setosus;* 731. *Ac. gracilistylus* var. *nodiflorus.*

Tso, C. L. 355. *Ac. gracilistylus;* 1805. *K. pictus;* see also Ching, R. C. & C. L. Tso, Chun, N. K. & C. L. Tso.

Tsoong, K. K. 4044. *K. pictus.*

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